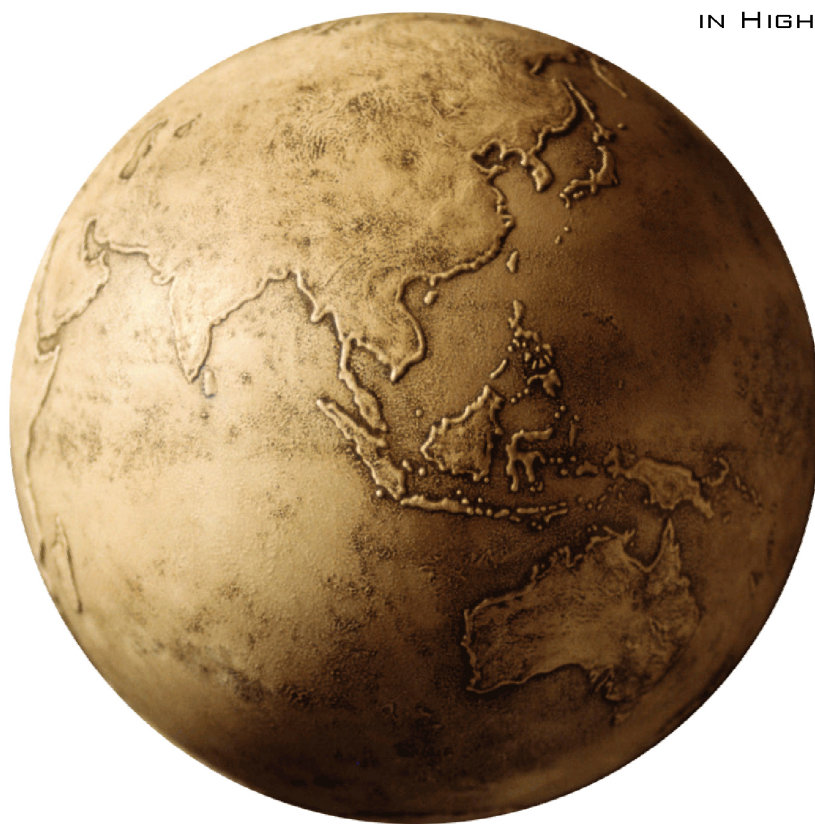International Journal of

Teaching & Learning

in Higher Education

ISETL
Passionate about pedagogy
Purposeful about practice

Purpose

The International Journal of Teaching and Learning in Higher Education (ISSN 1812-9129) provides a forum for the dissemination of knowledge focused on the improvement of higher education across all content areas and delivery domains. The audience of the IJTLHE includes higher education faculty, staff, administrators, researchers, and students who are interested in improving post-secondary instruction. The IJTLHE is distributed electronically to maximize its availability to diverse academic populations, both nationally and internationally.

Submissions

The focus of the International Journal of Teaching and Learning in Higher Education is broad and includes all aspects of higher education pedagogy, but it focuses specifically on improving higher education pedagogy across all content areas, educational institutions, and levels of instructional expertise. Manuscripts submitted should be based on a sound theoretical foundation and appeal to a wide higher education audience. Manuscripts of a theoretical, practical, or empirical nature are welcome and manuscripts that address innovative pedagogy are especially encouraged.

All submissions to IJTLHE must be made online through the Online Submission Form. In addition, all manuscripts should be submitted in English and in Microsoft Word format. The following Submission Guidelines pertain to all manuscript types, that is, Research Articles, Instructional Articles, and Review Articles. Ultimately, authors should follow the guidelines set forth in the most recent edition of the Publication Manual of the American Psychological Association (APA).

Review Process

Following a brief editorial review, each manuscript will be blind reviewed by two members of the Review Board. The review process will take approximately 90 days. At the end of the 90-day review process authors will be notified as to the status of their manuscripts - accept, revise and resubmit, or reject - and will receive substantive feedback from the reviewers. Manuscript authors are responsible for obtaining copyright permissions for any copyrighted materials included within manuscripts.

Research Articles

Instructional Articles

Book Review

Academic Perspectives and Approaches to Social Media Use in Higher Education: A Pilot Study

Karen Sutherland, Uwe Terton, Cindy Davis, Christina Driver, and Irene Visser
University of the Sunshine Coast

Previous studies have confirmed the prevalence of social media adoption by university students. However, research has focused predominantly on student perspectives of social media's impact on learning and teaching, student engagement, and recruitment. This pilot study explores the methods, attitudes, and perceptions of academics regarding social media use in their teaching while investigating strategies used to navigate perceived challenges posed by social media technology. The survey of 53 academics from an Australian university found that 49% used social media in their teaching and did so due to its speed and accessibility in communicating with students. Yet, this communication was largely to broadcast information, neglecting social media's two-way functionality. Concerns regarding privacy, bullying, and time scarcity in relation to social media were key themes present in the data. Setting rules with students at the beginning of social media use was a common strategy employed by academics to address these challenges.

Now with 3.81 billion users globally, social media has become a common topic of discussion throughout the wider community, and more specifically within higher educational contexts (Fenwick, 2016; Dabbagh & Kitsantas, 2011; We Are Social, 2020; Willems, Chie, Bussey, Doherty, & Huijser, 2018). Thus far, the higher educational literature has predominantly focused on broad categories such as learning and teaching, student engagement, and student recruitment (Alshuaibi, Alshuaibi, Shamsudin, & Arshad, 2018; Chawinga, 2017; Vrontis, Nemar, Ouwaida, & Riad Shams, 2018). However, over the past few years, the discussion has shifted from critical debates on whether or not to use social media within higher educational institutions and instead is evolving into discourse exploring best practice methods to leverage the technology (Becker et al., 2017; Henderson, Selwyn & Ashton, 2017; Poore, 2016). With the majority of university students using some form of social media (Vorderer, Krömer & Schneider, 2016; McCoy, 2016) the discussion has positioned social networking sites as valuable tools to reach students where they are already active, rather than solely focusing on techniques to encourage students to use the learning and teaching tools preferred by academic staff (Cooke, 2017; Saha & Karpinski, 2018). While the discussion surrounding social media's place in higher education has advanced over time, the literature has principally focused on students' attitudes and experiences with little emphasis on academic perspectives (Gruzd, Haythornthwaite, Paulin, Gilbert, & del Valle, 2018; Lupton, 2014; Manca & Ranieri, 2017). This imbalance in viewpoints may have resulted in an inaccurate portrayal of social media's effectiveness in higher education. While the literature has suggested that social media can be a beneficial tool for students, a scarcity of research has been conducted to explore the impact on academic staff of using social media in higher education (Fenwick,

2016; Lupton, 2014; Manca & Ranieri, 2017). Our study aims to address this gap in knowledge through the exploration of academic perspectives, experiences, and strategies regarding the use of social media in a university learning and teaching context.

The few studies conducted to investigate academic use of social media in higher education have exposed a number of common themes both positive and negative (Fenwick, 2016; Lupton, 2014; Manca & Ranieri, 2017). These findings suggest that the use of social media by academics is a complex area of analysis and one that requires continual investigation as the technology continues to evolve rapidly. The following review of the literature explores the perceived benefits and disadvantages for academics in using social media as part of their profession.

The Perceived Benefits for Academics Using Social Media in a Higher Educational Context

An analysis of studies conducted by Willems et al. (2018), Manca and Ranieri (2017), Fenwick (2016) and Lupton, (2014) identified five key benefits perceived by academics who use social media as part of their day-to-day professional lives. Two of the key benefits were identified as: Connections and Networking and Teaching and Professional Support.

Connections and networking. The functionality of social media to surpass geographical boundaries to build social networks also applies to the development of academic ones. Social media was perceived by academics as facilitating the development of professional connections with industry and with other academics within their area of research interest, both locally and internationally (Bardakcı, Arslan, Unver, 2018; Van Noorden, 2014). This perceived benefit enabled academics to become aware of other academics in their research field, which traditionally only occurred at

conferences or by reading literature and reaching out via email. Facebook and LinkedIn groups were used to bring together academics of specific teaching or research interests. Furthermore, social media was also identified as building stronger connections with students by engaging with and meeting students where they are (Kift, Nelson & Clarke, 2010; Nelson & Clarke, 2014; Smith, 2017; Willems et al., 2018). In a study conducted by Moran, Seaman, and Tinti-Kane (2010, p. 5), the social media platforms most commonly used by academic staff were Facebook, Twitter, and YouTube.

Teaching and professional support. As a further development of social media facilitating connections and networking, academics identified the technology as also providing professional and teaching support from online communities of other academics. Manca and Ranieri (2017) suggested that social media can be used to create social capital (Helliwell & Putnam, 2007), particularly within online groups with a common interest such as a Facebook Group. In a study of a Facebook group for Canadian teachers, Rutherford (2010) found that the group facilitated practical discussions relating to teaching techniques that participants then used in their classrooms. Social media communities supported academics to pose challenges relating to their professions and to seek advice from more experienced colleagues (Manca & Ranieri, 2017).

The Perceived Disadvantages for Academics Using Social Media in a Higher Educational Context

The literature demonstrates that the perceived disadvantages for academics using social media far outweigh the advantages. According to studies by Willems et al. (2018), Manca and Ranieri (2017), Fenwick (2016) and Lupton, (2014) academics perceived social media use in their professions to pose issues relating to privacy, risk, credibility, copyright, plagiarism as well as highlighting a perceived lack of time, training, skills and support to use the technology effectively. Furthermore, these studies also identified that academics were unconfident about the quality of content that they were expected to post on social media and felt an obligation to use the technology whether they wanted to or not.

Privacy, risk, copyright and plagiarism. Breaches to the privacy of both academic staff and students were highlighted in the literature as one of the fundamental disadvantages of using social media in higher education (Fenwick, 2016; Lupton, 2014; Manca & Ranieri, 2017; Moran et al. 2010; Willems et al., 2018). Academics raised concerns that social media can blur the boundaries between their personal and professional lives while exposing students' personal lives outside of the classroom. Furthermore, participants in the Lupton (2014) study suggested that

being active on social media could pose a considerable risk to their professional reputations if they or other users posted negative information or if they were targeted by students. An example of this occurred in 2017 when a lecturer upset Chinese students by listing Hong Kong and Taiwan as separate countries in course materials; a recording of the classroom altercation was posted online, damaging the academic's reputation (Ho, 2017). Furthermore, participants in the Lupton study (2014) were concerned that the ideas that they shared on social media would be plagiarised or used without their permission as a breach of copyright.

Intellectual property rights. The issue of Intellectual Property (I.P) rights has also been raised in the literature in relation to who exactly owns the content that is created and posted by academics as part of their role in a higher educational context (Rodriguez, 2011). Confusion exists among academics as to whether they own the social media content that they create as part of their work, whether it is owned by their employer as per institutional I.P. policies that they must adhere to as a condition of employment, or whether the content ultimately belongs to the social media platform on which it is posted.

Time scarcity. Time scarcity due to existing workload has been a common theme in the literature surrounding the experiences of academic staff in higher education more generally (Brew, Boud, Crawford, & Lucas, 2017; McAvinia, Ryan & Moloney, 2018; Vostal, 2015) and in relation to social media use (Guy, 2012; Fenwick, 2016; Lupton, 2014; Manca & Ranieri, 2017; Willems et al, 2018;).Using social media was viewed an additional (and labor intensive) task required of academics who were already overloaded in terms of the responsibilities of their role. Although research has not yet been conducted into the psychological impacts for academics using social media in higher education, previous research has suggested that work pressure and workload contribute to psychological strain in academic staff (Boyd et al, 2011; Kinman, 2001; Lease, 1999; McClenehan, Giles, & Mallett, 2007).

Lack of training, skills, support, and credibility. A significant issue raised in the literature was the perception of a lack of support by the higher educational institutions encouraging academics to use social media for teaching, learning, and research (Fenwick, 2016; Manca & Ranieri, 2017; Guy, 2012; Willems et al, 2018;). Participants felt both pressure from their home institutions and an obligation to use social media technology (whether they wanted to or not), but they felt overwhelmed, unskilled, and unsupported when attempting to do so. Academics cited a lack of training being provided to assist them in learning how to use social media (rather than assuming all academics have prior experience) and a lack of support from I.T. departments to provide day-

to-day tech support. In the Lupton (2014, p. 26) study, this perception of a lack of social media proficiency also extended to the creation of content with some participants unsure about how to create quality posts and not "...coming across as dumb". The literature also suggested that some academics perceived using social media for teaching, learning and research purposes lacked credibility among their peers (Lupton, 2014). Participants in the Lupton (2014) study explained that they had been accused by colleagues of wasting time for using social media technology as part of their working day.

Our study differs from the literature explored because it not only provides a current insight into academic perspectives of social media use in higher education, it also investigates the strategies used by academics to navigate the use of social media in their day-to-day professional roles. A most recent finding on the academic perspectives of social media use was conducted by Willems et al (2018) who recorded a live debate on the topic at an academic conference and analyzed 63 tweets from audience members, as well as comments from the floor, in response to the various issues raised. While this study provided an insight into the issues associated with academic use of social media in higher education, it did not delve into the strategies academics use to cope with using social media technology in a teaching and learning context.

The last in-depth survey of academics on this topic was Lupton (2014). Much has changed in the social media landscape in the years following, and a further analysis is required. The Fenwick (2016) study focused solely on issues surrounding professionalism of academics when using social media. Our study has a broader scope by exploring the perceptions and attitudes of academics (positive and negative) relating to social media use and methods used to manage it. Manca and Ranieri's (2017) literature review of previous research explored both student and teacher perspectives. Most of the literature reviewed in this paper investigated teachers' perspectives, not specifically those of university educators. The most recent study, of relevance to our research, and explored by Manca and Ranieri (2017), was Gregory and Lodge's (2015) study into the barriers presented by academic workload in implementing technology-enhanced learning strategies in higher education; however, this research did not specifically focus on the use of social media.

As social media is constantly changing, our study provides a contemporary insight into academic perspectives of social media use as a tool for teaching and learning in higher education and the strategies employed to use the technology. The scarcity of research in this area of scholarship has led to the development of the following research questions:

RQ1: *What are the perceptions and attitudes of academics regarding the use of social media in a higher educational learning and teaching context?*
RQ2: *How are academics using social media in a higher educational learning and teaching context?*

Material and Methods

An online SurveyMonkey survey, with descriptive and analytic elements, was distributed via email to 472 academic staff at an Australian university. This research constituted a pilot study due to its specific scope focusing on one Higher Education institution. The learnings from this study will be used to develop a future project with wider scope (Leon, Davis & Kraemer, 2011). The rationale behind using this mixed-methods approach was to explore habits, attitudes and approaches relating to social media use by academic staff as a tool for teaching and learning. This study applied a mixed-method approach employing a survey that included a range of questions prompting quantitative and qualitative responses. A mixed-method approach was used because the strength of each method can counteract the deficiencies of the other (Denscombe, 2008). Furthermore, the survey as a research tool is a standardized method of gathering uniform empirical data that can assist in describing and contrasting variable relationships (Axinn & Pearce, 2006; Weerakkody, 2008). Three email reminders were sent to academic staff throughout the 90-day data gathering phase. The overall survey attracted a response rate of 11% or (n = 53), 64% (n = 34) were female, 34% (n = 18) were male and 2% (1) person identified as other. Academics over 50 years of age had the greatest representation in the sample (n= 22, 42%), and next were academics aged 41 - 45 years (n= 16, 30%), 46 - 50 years and 36 - 40 years both with (n= 6, 11%), 31- 35 years (n= 2, 4%) and one academic (2%) aged between 26 and 30 years. Academic staff were predominantly spread across two faculties with 28 (53%) working in the Faculty of Arts, Business, and Law (FABL), 22 academics (42%) working in the Faculty of Science, Health, Education, and Engineering (FoSHEE); and three academics (5%) working across both. The three academics working across both faculties have been removed from the sample for some of the analyses as their representation was too low to derive meaningful results. The majority of the sample had more than 15 years of teaching experience (n= 20, 38%), followed at the other end of the scale by academics with 0-5 years' experience (n= 15, 28%). Academic staff with 6-10 years' teaching experience had the third greatest representation in the sample with teaching staff with 11-15 years' experience having the lowest representation. The survey consisted of 24 questions using a range of multiple choice, Likert

Table 1
Reasons for Introducing Social Media Into Teaching Practice

Reason for introducing social media into teaching	Percent	Frequency
Enjoy using social media.	27.08%	13
I use social media in most aspects of my life, including in my teaching practice.	33.33%	16
Quick and easy way to connect with students.	70.83%	34
I feel some pressure to keep up with other teaching staff who are using/starting to use social media in their teaching practice.	6.25%	3
Students expect to use social media as part of their higher education courses.	22.92%	11
USC expects teaching staff to incorporate social media into their teaching practice.	18.75%	9
I don't use social media in my teaching practice.	6.25%	3

scales, and qualitative response prompts that asked academic staff to address the two research questions about their perceptions and attitudes regarding social media (and its use) in a higher educational learning and teaching context. The questions developed were based on those used in a study by McCarthy (2010), who explored the use of social networking to enhance the first-year student experience. Statistical analyses were limited due to some questions allowing multiple options to be selected. Data were initially analyzed using descriptive statistics. Frequency distribution and percentages provided an overall description of the data. To test for homogeneity of responses across groups—faculty, gender, years of teaching experience and employment status—tests of differences using Crosstabs with Chi-Squared were conducted (Linneman, 2014). Qualitative responses were analyzed by coding them directly against the research questions to identify emerging themes in each category.

Results

Survey results have been structured to directly address the research questions. Almost half of the sample (n=26, 49%) indicated that they used social media in their teaching. From further Chi-squared analysis, significant differences could not be identified between an academic's faculty, gender, or years of teaching and whether or not they used social media as a teaching tool. Furthermore, there were no significant differences in attitudes and concerns about social media across all employment statuses (continuing, fixed, and sessional).

RQ1: What are the perceptions and attitudes of academics regarding the use of social media in a higher educational learning and teaching context?

Table 1 contains the responses to the survey question: "What are the reasons that you have introduced social media into your teaching practice?" Participants could tick more than one option.

Table 1 demonstrates that the ease and speed of use; the enjoyment of, and familiarity with, social media technology; and student expectations were the key motivations for academics to use social media as a tool for teaching and learning. Similar sentiments were apparent in the qualitative data captured from the same "Other" option offered within the same survey question: "It allows you to meet students where they already are."

The ability to stay connected with students after graduation was also highlighted.

It also allows us as lecturers to stay in touch with our students during their entire university career rather than having them in one or two classes and then not hearing from them again. Staying in touch can help us recommend jobs or post positions for recent graduates.

Results in Table 2 demonstrate the responses to the prompt: "The benefits of using social media in my teaching practice are."

Again, participants could select multiple options to capture that they may have experienced multiple benefits using social media as a teaching tool.

Table 2 demonstrates that the participants in this study perceived that social media can enhance communication between them and students and also between students in particular courses. However, there were some aspects that participants perceived to be less beneficial than others. For example, social media's ability to showcase student work was the only option that did not return a significant result for academics from either faculty. This was also reflected in the qualitative data gathered from the same survey question:

Table 2
Attitudes Toward the Perceived Benefits of Using Social Media in Teaching Practice

Statement	Faculty	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Chi Squared and P Value
Social media enables me to better communicate and interact with students	FABL	8	15	3	0	0	$X^2 = 9.880$ $p = .042$
	FoSHEE	3	6	7	1	2	
Social media enables me to showcase student work	FABL	8	7	7	3	0	$X^2 = 6.005$ $p = .119$
	FoSHEE	1	7	8	2	1	
Using social media enables me to better alert students to relevant course materials	FABL	10	8	4	2	1	$X^2 = 8.164$ $p = .086$
	FoSHEE	1	7	6	2	3	
Social media enables me to clarify assessment requirements	FABL	9	3	10	2	1	$X^2 = 10.892$ $p = .028$
	FoSHEE	0	3	8	5	3	
Social media enables me to send reminders to students	FABL	10	7	7	1	0	$X^2 = 12.413$ $p = .015$
	FoSHEE	0	7	7	3	2	
Social media enables me to effectively make announcements	FABL	11	7	6	1	1	$X^2 = 13.447$ $p = .009$
	FoSHEE	0	5	7	3	4	
Social media enables students to better connect with academic staff	FABL	9	7	7	0	1	$X^2 = 16.306$ $p = .003$
	FoSHEE	0	5	5	6	3	
Social media enables students to better connect with each other	FABL	17	7	2	0	0	$X^2 = 12.258$ $p = .007$
	FoSHEE	3	9	6	1	0	
Social media enables students to more easily facilitate group work	FABL	15	6	3	0	0	$X^2 = 9.516$ $p = .023$
	FoSHEE	4	6	7	2	0	
Social media enables students to better share insights, experience and understandings related to their course	FABL	14	8	3	0	0	$X^2 = 17.326$ $p = .001$
	FoSHEE	0	10	7	2	0	
Social media provides an effective forum for students to share/reflect on their work	FABL	9	11	6	0	0	$X^2 = 12.707$ $p = .013$
	FoSHEE	0	7	9	2	1	
Social media provides an effective forum for students to discuss course-related topics	FABL	12	9	3	1	0	$X^2 = 10.572$ $p = .032$
	FoSHEE	1	10	5	2	1	

...not all students want to showcase their work on Social Media, it is not a good platform to showcase design work, because likes from friends is really not desirable and students need to have professional feedback.

Instead the perceived benefits of social media most related to its functional characteristics as a communication tool:

It's possible to find on YouTube relevant, engaging, current and accessible materials that can be relevant to teaching. Different form of communication to face-to-face, e.g., interview, animation, infographics, film, etc.

Privacy concerns. Privacy concerns returned a significant result in relation to an academic's faculty ($X^2 = 9.610$ $p = .048$). From the total of 19 FoSHEE academic participants, 84% (16) strongly agreed or agreed that they were concerned regarding their privacy when connecting students via social media, compared with 50% (13) of FABL academics (n=26). Privacy concerns were was also reflected in the open comments. For example, a participant who did not use social media said that this decision was, *"to maintain privacy"*.
Another academic highlighted that:

Privacy is key for students and teaching staff. Spend time trying to disconnect some students from their smartphone screen in class as it is.

Students' personal privacy concerns were also mentioned:

Those students who do have social media have also indicated that while social media can be good for communicating with other students, they too have privacy concerns about mixing their private profile with their student profile.

Furthermore, universities being ill-equipped to manage privacy issues relating to social media use by academics and students was identified by the sample:

We can talk about privacy settings, but I don't think anything is fail-safe. Do institutions need to have policies around this? It's a minefield....and I'm just glad that so far nothing seems to have blown up in my face, but I know of other instances among teaching staff where it has and has caused great stress - and the university management seems totally unequipped to deal with it.

Time scarcity. Time constraints relating to social media and its impact on work-life-balance returned a significant result in relation to gender ($X^2 = 11.991$ $p = .017$). Out of the 16 male participants, 63% (10) strongly agreed or agreed that the amount of time and energy required to keep up-to-date with teaching-related social media has a negative impact on work-life balance, compared with 17% (5) females (n=30). Issues relating to lack of time to use social media for learning and teaching were also a dominant theme in the qualitative data. For example, when explaining why one academic did not use social media, they stated: *"They add time commitments that I don't have."*
Another participant suggested that adding further communication channels increased time commitments in using them to interact with students.

One mode of communication is enough. If I set up Discussion board on BB and we use that, I don't also want to be having to check Facebook or emails - these things become enormously time-consuming.

Similarly, the task of social media monitoring was identified as one that is too time prohibitive for academics to undertake effectively:

In many other professions the monitoring of social media is a full-time job, as the audience expects immediate responses. This is not possible for most academics who have other activities.

However, the qualitative data identified reasons that some academics planned to increase their social media use for their teaching:

I want to incorporate it more into the content and assessment side of things.

Some wanted to use social media to teach students about professional development:

Currently 0 hours. I will probably add social media to introduce students to LinkedIn for professional career and CV building activities.

Others stated that the constant evolution of social media technology increased its attractiveness for academics: *"It's valuable and it capacities and flexibility are improving."*
Feelings of awkwardness. Some academics answered that they felt awkward when using social media as a teaching tool. This was most significant in relation to years of teaching ($x^2 = 18.339$ $p = .031$). Academics in their first five years of teaching reported the strongest levels of awkwardness in relation to using social media in their teaching. However, this group also had the greatest number of people disagreeing that they

Table 3
Percent and Frequency of Social Media Platforms Use by Academics

	Several times each day	Once per day	Weekly	Fortnightly	Monthly	Never	Total
Facebook	12.00%	6.00%	24.00%	4.00%	10.00%	44.00%	50
	6	3	12	2	5	22	
Youtube	6.00%	8.00%	36.00%	18.00%	20.00%	12.00%	
	3	4	18	9	10	6	50
Yammer	2.17%	2.17%	0.00%	0.00%	2.17%	93.48%	
	1	1	0	0	1	43	46
Instagram	0.00%	2.13%	12.77%	2.13%	0.00%	82.98%	
	0	1	6	1	0	39	47
LinkedIn	0.00%	4.17%	10.42%	4.17%	20.83%	60.42%	
	0	2	5	2	10	29	48
Twitter	2.13%	2.13%	17.02%	4.26%	8.51%	65.96%	
	1	1	8	2	4	31	47
Snapchat	0.00%	0.00%	2.17%	0.00%	0.00%	97.83%	
	0	0	1	0	0	45	46
Flickr	0.00%	0.00%	0.00%	0.00%	2.22%	97.78%	
	0	0	0	0	1	44	45
Pinterest	2.13%	0.00%	4.26%	4.26%	8.51%	80.85%	
	1	0	2	2	4	38	47
Behance or similar portfolio platform	0.00%	0.00%	2.22%	2.22%	2.22%	93.33%	
	0	0	1	1	1	42	45

felt awkward using social media. There was also a significant relationship between feelings of awkwardness in using social media and the academics who did not use it ($X^2 = 9.258$ $p = .026$). Awkwardness was not mentioned at all within the qualitative data.

Concerns about bullying. Participant concerns regarding social media being used by students to bully each other and academic staff were present in the qualitative data, resulting in a negative impact on mental health.

> Social Media interactions such as Facebook groups allows students to form collaborations to bully and attack staff and influence other students that such behavior is socially and professionally normal. It nearly ended my teaching career. It made me see myself as students said they saw me - worthless, useless and inept.

Due to this concern, participants mentioned the necessity for academic staff to closely monitor social media interactions between students to address issues of bullying if they arise:

> If Social media is not monitored by staff, it can allow for bullying among students which then has to be sorted by a staff member.

RQ2: How are academics using social media in a higher educational learning and teaching context?

Nearly half of the sample (24, 45%) answered that they spent less than one hour per week working on social media for their teaching practice; with a further 30% (16) academics spending between 1 - 3 hours per week. Approximately, 8% (4) academics spent between 4 - 7 hours per week using social media for their teaching.

Table 3 contains the responses to the question: How often do you use the following social media platforms. This question also allowed for participants to provide a qualitative response if a social media platform that they used was not on the list. This question contains a list of the mainstream social media platforms.

Facebook, YouTube, Twitter and LinkedIn were the social media platforms used most frequently by academics, particularly on a weekly basis. The variance in the total number of respondents was due to some participants not responding to every platform option. Participants could also provide qualitative responses to this question. In the qualitative question field, academics responded that they perceived YouTube as a repository of valuable resources instead of a social media platform in its common definition, e.g., *"I use YouTube as a resource for video teaching materials, so not is a "social" way as such."* Other responses indicated that academics avoided using other social

media platforms in addition to YouTube to avoid increasing their workload:

> I mostly use YouTube videos so haven't spent too much energy on trying to embed other types of social media in my course due to the fact that I'm afraid it will increase workload.

Other social media platforms used by academics identified in the qualitative data included WordPress, Slack, Periscope, Reddit, PebblePad and Flickr.

Participants in this study were also asked the question: What strategies do you use to manage social media in your teaching practice? This question also included a field for qualitative responses in participants wanted to provide further information. Table 4 and the following qualitative responses contain the answers to this question.

Participants were able to provide more than one answer to this question. As such, the majority of academics reported that they took care when constructing social media content and to protect their privacy, however, less employed time-management and stress-reduction strategies. The qualitative data highlighted a range of strategies used by academics to manage what they perceived as the more challenging aspects of using social media in their teaching. Themes that arose included applying the institution's processes and policies and employing best practices from other organizations. However, the most predominant strategy evident in the qualitative data related to setting up rules,

boundaries, and guidelines at the beginning of a social media platform being used by academic staff and student, for example, in setting the boundaries between academics and students: *"I'm clear with students about how I will interact with them on social media. IE about courses and programs and on Facebook for instance I won't friend them but rather interact in designated groups."* Another example was that of keeping their private and professional lives separate on social media platforms: *"I have set up a dedicated professional Facebook account to separate my professional and personal connections. This has been successful thus far."* Further examples related to academics setting guidelines to navigate students interacting with each other on social media: *"I put up some information about keeping posts to topic and being respectful of others."* A final example was to only respond in person to particular types of comments: *"I don't respond quickly to aspects that have an 'emotional' nature. I acknowledge that deeper discussions and arguments are better to have face-to-face."*

Participants in this study were requested to share exactly what they use social media for in a teaching context. Table 5 presents the answers to the question: How do you use social media in your teaching practice?

The three most popular uses of social media involved the broadcasting of course-related information, and the least popular related to using social media for assessments and gathering student opinions.

Table 4
Strategies Used to Manage Social Media in Teaching Practice

Strategy	Percent and frequency
Monitoring my social media use, both in my personal and professional life.	40.48% 17
Limiting the amount of time spent on social media relating to teaching practice.	40.48% 17
Utilizing time-management strategies to manage my workload and social media use.	26.19% 11
Utilizing positive stress reducing techniques, such as meditation, yoga, exercise, counselling etc. to manage the effects of my teaching workload and social media use.	26.19% 11
Researching the different forms of social media, and their uses.	38.10% 16
Taking great care over what I write in my social media posts.	78.57% 33
Protecting my private information on social media platforms.	71.43% 30
Highlighting to students, the importance of protecting their personal information on social media platforms.	35.71% 15
Challenging any inappropriate comments that I see on social media.	40.48% 17
Total Respondents	42

Table 5
Uses of Social Media in Teaching Practice

Use of social media in teaching	Percent	Frequency
Managing events, excursions	34.09%	15
Group work	40.91%	18
Discussion of course content	45.45%	20
Announcements	54.55%	24
To remind students	40.91%	18
Solicit opinions	20.45%	9
Sharing of student work	25.00%	11
Journal work	13.64%	6
Clarify assessments	31.82%	14
Assessment	15.91%	7
Sharing of interesting materials and information relevant to the course	75.00%	33
Sharing of inspirational materials and ideation relevant to the course	54.55%	24
Total Respondents		44

Discussion

One of the key findings from this pilot study was that academics in FABL used social media more than their FoSHEE counterparts. Within the Faculty of Arts, Business and Law are disciplines such as Communication, Creative Industries, Social Sciences, and Marketing in comparison to the predominantly STEM-focused disciplines in the Faculty of Science, Health, Engineering, and Education. The difference in social media use by academics between the faculties may be explained by the largely communication, creative, and business-centered disciplines within FABL. We propose that academics in communication-centered disciplines may have greater confidence and fewer concerns when deciding to adopt new communication technologies such as social media.

A significant concern raised in our study related to privacy breaches when using social media to communicate with students; this is also a prominent theme in the literature (Willems et al., 2018; Manca & Ranieri, 2017, Fenwick, 2016; Lupton, 2014; Moran et al. 2010). However, academics in FoSHEE (again STEM-related disciplines) reported having the greatest concern. This could be due to a lesser focus on communication technologies within these disciplines, as mentioned, with this unfamiliarity and inexperience in using social media resulting in increased concern and inhibitions relating to its use.

Furthermore, concerns regarding time scarcity as a result of social media use were also present in our results, thus corresponding to the literature (Guy, 2012; Fenwick, 2016; Lupton, 2014; Manca & Ranieri, 2017; Willems et al., 2018). Yet, male participants registered much greater concern than female counterparts about the perceived time commitment of using social media. This may be because in general, Australian women use social media more on a daily basis in comparison to men, therefore, its use is already firmly embedded in their day-to-day activities and not perceived as an additional task (Yellow, 2018).

Again, and in line with the literature, participants identified feelings of awkwardness when using social media, but the perception was strongest with academics within their first five years of teaching (Lupton, 2014). Feelings of awkwardness for new academics may be attributed to this period of professional development in general, and they may not be solely related to social media use.

Concerns relating to bullying of students and staff via social media were present in this pilot study, but not highlighted in the literature. However, it seemed the academics experienced with social media effectively addressed and managed these concerns by setting up clear rules, boundaries, and guidelines for their interactions with students at the very beginning of using social media in a teaching context.

The social media platforms used by academics reinforce those used in the Moran et al. (2010) study. However, the platforms used by academics in our study differ slightly to those used by the general Australian population in which Instagram and Snapchat are used more than LinkedIn and Twitter (Yellow, 2018, p. 14). The difference may be due to LinkedIn being a professional platform and therefore of greater relevance and appropriateness to academics and Twitter being used to share academic material and to increase research profiles (Lupton, 2014).

Reluctance in using social media for assessments was present among academics in our study. Lupton

(2014) found that academics felt that they lacked credibility in the eyes of their peers if they used social media. Possibly this perception of a lack of credibility has been extended to social media's capacity and legitimacy as an assessment tool. Innovation, experience and relevance will be key factors in increasing the use of social media for assessments.

One of the most significant findings in our study is that social media is predominantly being used by academics to broadcast information to their students instead of leveraging its two-way functionality. More needs to be understood to determine whether social media is being used for one-way communication as a result of lack of training in how to use the characteristics of the technology, feelings of awkwardness in engaging with students using the platforms, perceptions of time scarcity and increased workload as a result of two-way communication or a risk mitigation strategy to limit negative interactions with students and reducing potential privacy breaches. Parallels can be drawn with other professions, such as public relations where social media was also used for one-way communication when it was first adopted by the industry as a communication tool (Grunig, 2009; Macnamara, 2010).

Limitations and Further Research

This pilot study was limited to one university and a small sample size. Further research is required to investigate its findings at a greater depth with a larger sample of academics to better understand the difference between academics who have embraced the use of social media in a teaching context and the perceptions of those who are reluctant to do so. Further investigation is also necessary to explore why academics are using social media as a channel to broadcast information to students rather than leveraging the functionality of social media technology to engage and collaborate with students as part of the teaching and learning process.

Conclusion

Overall, this pilot study highlighted that the academics not regularly using social media in their teaching had the greatest concerns about its use and that those using the technology are effectively implementing strategies to address and manage the perceived concerns of those not using it. Furthermore, the two different faculties had very different perceptions and approaches to social media. These silos within this particular university may be diminished with greater collaboration between the faculties where academics using social media can mentor those who are unfamiliar with, fearful of, and/or unconfident in using it.

References

Alshuaibi, M. S. I., Alshuaibi, A. S. I., Shamsudin, F. M., & Arshad, D. A. (2018). Use of social media, student engagement, and academic performance of business students in Malaysia. *International Journal of Educational Management, 32*(4), 625-640. doi:10.1108/IJEM-08-2016-0182

Axinn, W. G., & Pearce, L. D. (2006). *Mixed method data collection strategies*. University of North Carolina, Chapel Hill: Cambridge University Press.

Bardakcı, S., Arslan, Ö., & Ünver, T. K. (2018). How scholars use academic social networking services. *Information Development*, 34(4), 334-345.

Becker, S. A., Cummins, M., Davis, A., Freeman, A., Hall, C. G., & Ananthanarayanan, V. (2017). *NMC horizon report: 2017 higher education edition*. Boulder, CO: EDUCAUSE

Boyd, C. M, Bakker, A. B., Pignata, S, Winefield, A. H., Gillespie, N., & Stough, C. (2011). A longitudinal test of the job demands-resources model among Australian university academics. *Applied psychology, 60*(1), 112-140.

Brew, A, Boud, D, Crawford, K., & Lucas, L (2017). Navigating the demands of academic work to shape an academic job. *Studies in Higher Education,* 1-11.

Chawinga, W. D. (2017). Taking social media to a university classroom: teaching and learning using Twitter and blogs. *International Journal of Educational Technology in Higher Education, 14*(1), 3. doi:10.1186/s41239-017-0041-6

Cooke, S. (2017). Social teaching: Student perspectives on the inclusion of social media in higher education. *Education and Information Technologies, 22*(1), 255-269.

Dabbagh, N., & Kitsantas, A. (2011). Personal Learning Environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning. *The Internet and Higher Education, 15*(1), 3-8. doi:10.1016/j.iheduc.2011.06.002

Denscombe, M. (2008). Communities of practice: A research paradigm for the mixed methods approach. *Journal of Mixed Methods Research*, 2(3), 270-283.

Fenwick, T. (2016). Social media, professionalism and higher education: a sociomaterial consideration. *Studies in Higher Education, 41*(4), 664-677. doi:10.1080/03075079.2014.942275

Gregory, M. S., & Lodge, J. M. (2015). Academic workload: the silent barrier to the implementation of technology-enhanced learning strategies in higher education. *Distance Education, 36*(2), 210-230.

Grunig, J. E. (2009). Paradigms of global public relations in an age of digitalisation. *Prism, 6(2),* 1-19.

Gruzd, A., Haythornthwaite, C., Paulin, D., Gilbert, S., & del Valle, M. E. (2018). Uses and gratifications factors for social media use in teaching: Instructors' perspectives. *New Media and Society, 20*(2), 475-494.

Guy, R. (2012). The use of social media for academic practice: A review of literature. *Kentucky Journal of Higher Education Policy and Practice, 1*(2), 7.

Helliwell, J. F., & Putnam, R. D. (2007). Education and social capital. *Eastern Economic Journal, 33*(1), 1-19.

Henderson, M., Selwyn, N., & Aston, R. (2017). What works and why? Student perceptions of 'useful' digital technology in university teaching and learning. *Studies in Higher Education, 42*(8). 1567-1579.

Ho, G. (2017). Why Australian universities have upset Chinese students. *BBC News,* Retrieved from https://www.bbc.com/news/world-australia-41104634

Kift, S. M., Nelson, K. J., & Clarke, J. A. (2010). Transition pedagogy: A third generation approach to FYE: a case study of policy and practice for the higher education sector. *The International Journal of the First Year in Higher Education, 1*(1), 1-20.

Kinman, G. (2001). Pressure points: A review of research on stressors and strains in UK academics. *Educational psychology, 21*(4), 473-492.

Lease, S. H. (1999). Occupational role stressors, coping, support, and hardiness as predictors of strain in academic faculty: An emphasis on new and female faculty. *Research in Higher Education, 40*(3), 285-307.

Leon, A. C., Davis, L. L., & Kraemer, H. C. (2011). The role and interpretation of pilot studies in clinical research. *Journal of Psychiatric Research*, 45(5), 626-629.

Linneman, T. J. (2014). *Social statistics: Managing data, conducting analyses, presenting results*. Oxfordshire, UK: Routledge.

Lupton, D. (2014). '*Feeling better connected': Academics' use of social media.* Retrieved from https://www.canberra.edu.au/about-uc/faculties/arts-design/attachments2/pdf/n-and-mrc/Feeling-Better-Connected-report-final.pdf

Macnamara, J. (2010). Public relations and the social: How practitioners are using, or abusing, social media. *Asia Pacific Public Relations Journal, 10, 21-39.*

Manca, S., & Ranieri, M. (2017). Implications of social network sites for teaching and learning. Where we are and where we want to go. *Education and Information Technologies, 22*(2), 605-622.

McAvinia, C., Ryan, D., & Moloney, D. (2018). "I don't have the time! Analysing talk of time in lecturers' use of the VLE." *Irish Journal of Technology Enhanced Learning, 3*(2), 35-46.

McCarthy, J. (2010). Blended learning environments: Using social networking sites to enhance the first year experience. *Australasian Journal of Educational Technology,* 26(6). 729-740.

McClenahan, C. A., Giles, M. G., & Mallett, J. (2007). The importance of context specificity in work stress research: A test of the Demand-Control-Support model in academics. *Work and Stress, 21*(1), 85-95.

McCoy, B. R. (2016). Digital distractions in the classroom phase II: Student classroom use of digital devices for non-class related purposes. Retrieved from http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1091&context=journalismfacpub

Moran, M., Seaman, J., & Tinti-Kane, H. (2010). *Teaching, learning, and sharing: How today's higher education faculty use social media.* Babson Survey Research Group. Retrieved from https://files.eric.ed.gov/fulltext/ED535130.pdf

Nelson, K., & Clarke, J. (2014). The first year experience: Looking back to inform the future. *HERDSA Review of Higher Education, 1,* 23-46.

Poore, M. (2016). *Using social media in the classroom: A best practice guide* (2nd ed.). Newbury Park, CA: Sage.

Rodriguez, J. (2011). Social media use in higher education: Key areas to consider for educators. *Journal of Online Learning and Teaching*, 7(4), 539-550.

Rutherford, C. (2010). Facebook as a source of informal teacher professional development. Retrieved from https://ineducation.ca/ineducation/article/view/76

Saha, N., & Karpinski, A. C. (2018). The influence of social media on international students' global life satisfaction and academic performance. In M. Khosrow-Pour (Editor-in-chief), *Student engagement and participation: Concepts, methodologies, tools, and applications* (pp. 1255-1275). Hershey, PA: IGI Global.

Smith, E. E. (2017). Social media in undergraduate learning: Categories and characteristics. *International Journal of Educational Technology in Higher Education, 14*(1), 12.

Van Noorden, R. (2014). Online collaboration: Scientists and the social network. *Nature News, 512*(7513), 126.

Vorderer, P., Krömer N., & Schneider, F. M. (2016). Permanently online–permanently connected: Explorations into university students' use of social media and mobile smart devices. *Computers in Human Behavior, 63.* 694-703.

Vostal, F. (2015). Academic life in the fast lane: The experience of time and speed in British academia. *Time and Society, 24*(1), 71-95.

Vrontis, D., El Nemar, S., Ouwaida, A., & Riad Shams, S. M. (2018). The impact of social media on international student recruitment: the case of Lebanon. *Journal of International Education in Business, 11*(1), 79-103. doi:10.1108/JIEB-05-2017-0020

We Are Social. (2020). Digital Around the World in April 2020, viewed: 08/05/2020 https://wearesocial.com/blog/2020/04/digital-around-the-world-in-april-2020

Weerakkody, N. (2008). *Research methods for media and communication*. Oxford, UK: Oxford University Press.

Willems, J., Chie, A., Bussey, F., Doherty, I., & Huijser, H. (2018). Debating the use of social media in higher education in Australasia: Where are we now? *Australasian Journal of Educational Technology, 34*(5), 135-149.

Yellow. 2018. *Yellow social media report 2018: Part one - consumers.* Retrieved from https://www.yellow.com.au/wp-content/uploads/2018/06/Yellow-Social-Media-Report-2018-Consumer.pdf.

_____

DR. KAREN SUTHERLAND is a multi-award-winning social media educator, researcher and consultant at the University of the Sunshine Coast in Queensland, Australia. Dr Sutherland's research is focused on social media in relation to higher education pedagogy, employability, non-profit organisations and techniques to use social media technology to enhance offline user experiences and relationships. Her work has been published widely in peer-reviewed journals and Dr Sutherland is currently writing a book about strategic social media management, due for release in 2020. Dr Sutherland has presented her research at academic conferences and industry events in Australia, New Zealand, Portugal and Singapore.

DR. UWE TERTON is a senior lecturer in Design at the University of the Sunshine Coast, Australia. His main interest is in Design and Education and how both can complement each other. His research projects are focused on computer supported education that makes use of technology to reach out to different types of learners as well as disadvantaged learners. Dr Terton's work has been published widely in peer-reviewed journals and in conference proceedings. He is currently working on a project that helps improving language skills and literacy acquisition in children with Downs syndrome via a computer-based learning application that simultaneously provides education and entertainment.

DR. CINDY DAVIS is a Professor and Discipline Lead in Social Work at the University of the Sunshine Coast, Australia. Her main areas of research are psycho-oncology, international social work, and learning and teaching in higher education. Dr Davis has published over 60 peer-reviewed journals and written several books and book chapters. She has been an invited speaker to conferences both nationally and internationally to present on her research in cancer and learning and teaching in higher education.

CHRISTINA DRIVER is a PhD candidate and academic in the School of Social Sciences at the University of the Sunshine Coast, Australia. Her main teaching areas include, human behaviour, psychology for healthcare practitioners, research methods and statistics. Her research interests are in both quantitative and qualitative methods and range from psychosocial strategies in rehabilitation and healthcare settings, to creating psychologically safe learning environments in higher education. Christina has been published in international peer-reviewed journals and is currently a Science Mentor for Frontiers for Young Minds, Health and Neuroscience.

IRENE VISSER is a lecturer of Design at USC. She is the recipient of four teaching awards in recognition for significant and sustained contributions to blended learning, student experience and engagement, first year retention and quality of learning and teaching. Irene' research focuses on factors that impact on creative confidence, in particular the effects of pedagogy, curriculum, environment and assessment feedback. Other research interests include social media as an educational tool and the relationship between environmentalism and the visual arts to understand the role of art in shaping environmental sustainability by motivating positive action through empathy.

The Ideal and the Experienced: University Teachers' Perceptions of a Good University Teacher and Their Experienced Pedagogical Competency

Virve Pekkarinen and Laura Hirsto
University of Eastern Finland

Anne Nevgi
University of Helsinki

This study explores how university teachers perceive the features and characteristics of a good university teacher and how they self-evaluate their experienced pedagogical competency. Furthermore, this study explores how the experienced pedagogical competency and perceived features and characteristics of a good university teacher are related. The data were collected by a questionnaire (N=73) from two groups of university teachers: the participants and non-participants of an educational development project. The results showed that the teachers perceived a good university teacher as having a wide knowledge base, having versatile professional roles, and continuously developing their professional competency. They also self-evaluated social reflection, emotions, and active participation in teaching development as core areas of their pedagogical competency. The university teachers perceived ideal of a good university teacher was mainly consistent with their experienced pedagogical competency, however, an emotional aspect was not perceived to include the ideal of a good university teacher. Comparing the two groups revealed differences in how the university teachers experienced their expertise as teachers. It seems that strategic educational development projects can act as gateways to develop teaching skills through systematic development of teaching for university teachers who may not find formal university pedagogy courses suitable for them.

A rapidly changing world and globalization are presenting new challenges for higher education. The society also sets new requirements for university graduates such as 21st-century competencies as they are entering working life (e.g., Voogt & Roblin, 2012). Due to these changing demands, there is a need to develop teaching in higher education. Questions, such as "What characterizes a good university teacher?" and "What competencies should a good university teacher have?", have raised considerable interest in higher education in recent decades. This study aims to explore how university teachers perceive the features and characteristics of a good university teacher, as well as how they self-evaluate their experienced pedagogical competency. Furthermore, this study aims to explore how the experienced pedagogical competency and perceived features and characteristics of a good university teacher are related. These perspectives are investigated in two different university teacher groups in order to explore whether there are differences in the perceptions between a group of teachers, who have decided to participate in a strategic educational development project and a comparative group of university teachers who are not participating in the project.

While researchers have provided a variety of definitions of the characteristics and competencies required, a good university teacher is often described as a subject field expert with pedagogical skills (e.g., Biggs & Tang, 2011; Duță, G. Pânişoară, & I. O. Pânişoară, 2014; Hirsto, Lampinen, & Syrjäkari, 2013; Su & Wood, 2012). This suggests that the research-teaching nexus is characteristic of expertise in university teaching (e.g. Annala & Mäkinen, 2011; Weller, 2016). University teachers usually begin their academic careers as researchers, and teaching is a duty that comes along with their academic profession as a researcher. In their work as "teachers-as-researchers", university teachers need to have an understanding of how knowledge is created in their professional area (Annala & Mäkinen, 2011; Weller, 2016).

Although the connection between research and teaching is elementary in universities, the relationship is not simple in terms of academics' development in the expertise of research and teaching. The notion of the scholarship of teaching and learning (SoTL) was introduced by Boyer (1990) to highlight the apparent disregard of teaching skills in the academic context, and the notion has since been explored by many scholars. Healey (2000), for example, argues that, in order to enhance the appreciation of teaching, both disciplinary research and teaching should be systematically investigated, and university teachers' pedagogical skills in teaching should be open to collegial peer review, as is their research expertise. Weller (2016) agrees with this by suggesting that becoming scholarly in teaching requires rethinking teaching through the lens of pedagogic inquiry. Kreber and Cranton (2000) approach teachers' expertise and the development of SoTL by considering different domains of knowledge in teaching, namely instructional, pedagogical, and curricular knowledge. Knowledge in each domain is created through three forms of reflection: content, process, and premise reflection, leading to nine components of SoTL. They suggest that the development of SoTL is a process including reflection on experience-based knowledge and research-based knowledge about teaching.

The SoTL model by Kreber and Cranton (2000) was influenced by Shulman's (1986) model of special

types of knowledge required in effective teaching: subject matter content knowledge, pedagogical content knowledge, and curricular knowledge. Extending Shulman's idea, the "technological pedagogical content knowledge" (TPACK) framework by Koehler and Mishra (2008, see also Koehler, Mishra, Kereluik, Shin, & Graham, 2014) attempts to identify the nature of knowledge required by teachers for effective technology integration in their teaching while addressing the complex and situated nature of teacher knowledge. Even though the TPACK model has not been specifically developed in the context of higher education, it has also been used and studied in higher education (e.g., Dysart & Weckerle, 2015; Kushner Benson &Ward, 2013).

Besides considering university teachers' expertise as mastery of a body of knowledge (Edwards & Nicoll, 2006), it can also be perceived to be collective in nature, offering a framework to approach expertise as an experiential phenomenon, meaning that expertise is seen as contextual and created socially in certain social and historical contexts (Isopahkala-Bouret, 2008). According to Isopahkala-Bouret (2008), expertise as an experiential phenomenon includes relevant knowledge, a context-dependent way of acting, and a sense of confidence and trust. Experiencing one's expertise depends on the situation and thus, the way academics and teachers experience themselves plays a crucial role in how they are as teachers (Ashwin et al., 2016; Isopahkala-Bouret, 2008; Weller, 2016). Furthermore, experience of expertise is influenced by the disciplines in which one teaches, for example, how knowledge is seen, what kind of social value we attach to this knowledge, and how to teach in certain fields (Ashwin et al., 2016; Fraser et al., 2014). Considering expertise as an experiential phenomenon means that expertise is not a stable status or a personal characteristic (Isopahkala-Bouret, 2008).

Competence, Competency, and Pedagogical Competency

When discussing expertise, skills, knowledge, and characteristics, the concepts of competence and competency are often used, sometimes also as synonyms (cf. Mäkinen & Annala, 2010). Defining the concepts of competence and competency is, however, a challenging task, and currently there is no consensus among scholars on how to define them. The two main approaches to competence/y are the European and American traditions (Garavan & McGuire, 2001; Le Deist &Winterton, 2005; Mäkinen & Annala, 2010). In the European tradition, competence is defined as what people can do (skills) rather than what they know, which can be described as an "outcome-based" approach (Hogg, 2013; Mäkinen & Annala, 2010). The American tradition approaches

competency as a process rather than merely as an outcome (Mäkinen & Annala, 2010). As a concept, competency captures skills beyond cognitive ability, such as self-regulation and social skills, and takes the behavioral aspects lying behind competent performance into account (Hogg, 2013; McClelland, 1998). This approach can be described, according to Hogg (2013), as a "strengths-based" approach.

Besides these two main approaches, Le Deist and Winterton (2005) argue for a multi-dimensional and holistic approach drawing from research traditions in Germany and France. This approach gives the opportunity to align educational and work-based provision and enables exploitation of the synergy between formal education and experiential learning in order to develop professional competence/y. The holistic approach has brought the concepts of competence and competency closer together (Mäkinen & Annala, 2010). According to Le Deist and Winterton (2005), all the aforementioned approaches can be called "rationalistic approaches". Although these approaches differ in how they define competence/y, they all regard human competence/y as being constituted of a specific set of attributes that workers use to accomplish their work, and these attributes are primarily seen to be context-independent (Le Deist & Winterton, 2005).

The main critique of the rationalistic approaches concerns the way that different attributes of work are operationalized into quantitative measures (Sandberg, 2000). In the context of higher education, efforts to define the competencies and characteristics of a good university teacher often result in general, simplified and overly narrow lists or sets of distinctive characteristics and features (Winterton, 2009). The "interpretative research tradition" provides an alternative to the rationalistic approaches to competence/y by suggesting that skills and competencies are based on, and formed in relation to, a person's perceptions and understanding of their work, defining competency as more of a social construction that results from the interaction between the individual and the environment in certain contexts (Sandberg, 2000). It is, therefore, not only the competencies themselves that are significant; the way that individuals experience work is also fundamental to their competency (Garavan & McGuire, 2001; Sandberg, 2000).

Pedagogical competence is a concept that has been used by a number of scholars in the higher education context. For example, Olsson and Roxå (2013, see also Olsson, Mårtensson, & Roxå, 2010) have studied and analyzed a system for rewarding excellence in university teaching, and they have presented a pedagogical competence model emphasizing a developmental aspect rather than a specific level of competence. They use the concept of competence referring to the European tradition. In their model, Olsson and Roxå (2013), however, consider that

becoming an expert and excellent teacher is a continuous process requiring continuous observations and reflection on the practice of teaching and its effects on student learning. Apelgren and Giertz (2010) also use the concept of pedagogical competence. They consider, however, that pedagogical competence is not just a static list of features and characteristics, but more of a process of showing the ability and will to regularly apply the attitude, the knowledge, and the skills that promote students' learning in the best possible way (Apelgren & Giertz, 2013). Both the pedagogical competence models of Olsson and Roxå (2013) and Apelgren and Giertz (2013) consider the concept of competence more comprehensively and widely than the definition related to the concept of competence in the European tradition.

In this study, we use the concept of pedagogical competency, and in defining the concept, we lean towards the interpretative research tradition. Furthermore, we understand expertise as an experiential phenomenon, and pedagogical competency is considered to be one aspect of university teachers' expertise. Thus, pedagogical competency refers here to university teachers' conceptions, reflections, evaluations, and experienced confidence as teachers (see also Pekkarinen & Hirsto, 2017). Experienced pedagogical competency is approached through self-evaluations and reflections.

Developing as a University Teacher and One's Pedagogical Competency

There is a strong consensus among scholars that developing as a teacher requires reflection (e.g., Biggs & Tang, 2011; Brookfield, 1995; McAlpine, Weston, C. Beauchamp, Wiseman, & J. Beauchamp, 1999; Schön, 1983; Tynjälä, Virtanen, Klemola, Kostiainen, & Rasku-Puttonen, 2016). Reflection, however, is not something that automatically changes teachers' actions and approaches to teaching (Hatton & Smith, 1995; Mälkki & Lindblom-Ylänne, 2012). In order to facilitate reflection turning into action and developing as a teacher, the concept and practice of reflection both need to be clear to the teacher, and it needs to be acknowledged that there are individual differences and preferences for using different reflective tools (Pekkarinen & Hirsto, 2017; Russell, 2005).

When considering the experience of expertise and competency as being contextual and created socially (Ashwin et al., 2016; Garavan & McGuire, 2001; Isopahkala-Bouret, 2008; Sandberg, 2000; Weller, 2016), the role of peers and colleagues needs to be discussed. According to Olsson and Roxå (2013), informed pedagogical discussions among colleagues are important in achieving theoretical and personalized knowledge about teaching and learning (see also Boyd

& Harris, 2010; Pedrosa-de-Jesus, Guerra, & Watts, 2017). University teachers create and maintain their understanding of teaching and learning in significant networks by having meaningful and sincere private discussions characterized by mutual trust and shared intellectual intrigue (Pyörälä, Hirsto, Toom, Myyry, & Lindblom-Ylänne, 2015; Roxå & Mårtensson, 2009). Significant relationships are at the heart of how teachers discuss their identities and how identity forms (Uitto, Kaunisto, Syrjälä, & Estola, 2015).

The role of emotions in learning and teaching has not been previously well recognized as learning and teaching in higher education are considered to be primarily cognitive and rational activities. However, some researchers consider that there is, besides cognitive (Schön, 1983) and social (Fleck & Fitzpatrick, 2009; Mälkki, 2011; Pekkarinen & Hirsto, 2017), also an emotional aspect of reflection (Boud, Keogh, & Walker, 1985). According to Boud and colleagues (1985), emotions can be considered elements of a reflective process whereby an individual recaptures, thinks about and evaluates one's experiences. In the recent decades, the role of emotions in learning and education (Arpiainen et al., 2016; Pekrun et al., 2007), in professional development (Heikkinen et al., 2011; Williams, 2009) and in development of a sense of expertise as a teacher (Ashwin et al., 2016; Isopahkala-Bouret, 2008) has emerged in the research literature. There is an emotional aspect to the experience of expertise as an academic and a teacher: besides knowledge and skills, one must, for example, be able to experience confidence when acting as an expert (Isopahkala-Bouret, 2008). When discussing teachers' experienced competency as a teacher, the concept of self-efficacy, originally introduced by Bandura (1977), has also been used (e.g., Henson, 2001, Trigwell & Prosser, 2004; Williams, 2009).

The perspective adopted in this article relates to the development of university teachers' pedagogical competency and the educational development processes of an institution. These relate to the core pedagogical development processes that are thought to support institutions in their educational development. These processes include strategic processes, curriculum processes, and the process of developing faculty members' expertise through the scholarship of teaching and learning (Barnett & Coate, 2005; Hirsto, 2013; Hirsto, Sointu, Valtonen, Saarelainen, & Team Ameba, 2018; Hubball & Gold, 2007). There is evidence that various kinds of pedagogical development programs and courses can have a positive effect on teachers and facilitate the development of teachers' pedagogical competency (Hirsto et al., 2013; Nevgi & Löfström, 2015; Pekkarinen & Hirsto, 2017; Postareff, Lindblom-Ylänne, & Nevgi, 2007, 2008; Stewart, 2014). However, there seems to be a continuous discussion on the effectiveness of pedagogical development programmes

and courses, for example in terms of the amount of pedagogical studies completed (Postareff et al., 2008) or the length of engagement in tackling pedagogical issues (Nevgi & Löfström, 2015; Pekkarinen & Hirsto, 2017). Furthermore, the development of the pedagogical competency of university teachers can be supported by facilitating their participation in educational development projects (Hirsto et al., 2013).

Aim of the Study and Research Questions

The aim of this study was to explore how university teachers perceive the features and characteristics of good university teachers and how they self-evaluate their experienced pedagogical competency. Furthermore, the aim is to explore how the features and characteristics of a good university teacher and teachers' experienced pedagogical competency are related. This study was conducted including two teacher groups, the participants and the non-participants of an educational development project, in order to understand the possible differences in how the teachers perceive being a good university teacher and their pedagogical competency. There is only a little research on how participation in an educational development project can influence how the university teachers perceive good university teaching.

We posed our research questions as follows:

(1) How do the university teachers perceive the features and characteristics of a good university teacher?

    a) How do university teachers' perceptions of a good university teacher vary according to participation in the flipped learning project?

    b) How do university teachers' perceptions of a good university teacher vary according to the amount of pedagogical studies completed?

(2) How do the university teachers self-evaluate their experienced pedagogical competency?

    a) How does university teachers' experienced pedagogical competency vary according to participation in the flipped learning project?

    b) How does university teachers' experienced pedagogical competency vary according to the amount of pedagogical studies completed?

(3) How are the university teachers' perceptions of a good university teacher and their experienced pedagogical competency related?

Method

Participants in the Study

The study participants (N=73) consisted of university teachers representing two groups (Figure 1) according to their participation (n=26) or non-participation (n=47) in an educational development project. The first group – Participants in the Flipped Learning (PFL) educational development project – consisted of university teachers who applied to participate in a one-year educational development project in a multidisciplinary Finnish university. The project was designed to support the university teachers in adopting the flipped learning design in their teaching and in developing their teaching. Forty-three university teachers applied and were accepted to participate in the project, and 26 of them agreed to participate in this study. The second group – Non-participants in the Flipped Learning educational development project (NFL) – consisted of 47 university teachers from the same university who did not participate in the educational development project. The teachers in this group were voluntary participants in a larger survey related to teachers' pedagogical, digital, and technological competencies conducted at the university. Data were collected from both the participants and non-participants in the educational development project in order to gain more insights on the potential contextual variation of university teachers' pedagogical competency.

The participants (51 females, 22 males) in the study represented all faculties of the university: philosophy 28 (38%), science and forestry 10 (14%), health sciences 20 (27%), social sciences and business studies 10 (14%), and other university units 5 (7%). Most of the participants had ongoing studies in pedagogy or had completed pedagogical studies (Table 1), and in both groups nearly half of the participants had completed 60 ECTS (European Credit Transfer System) credits of pedagogical studies. The PFL and NFL groups were thus quite similar in their profiles regarding pedagogical studies and gender.

Data Gathering and Instruments

The data were gathered through an electronic questionnaire during the spring term of 2016. For the PFL group, data collection took place after the university teachers had started the flipped learning project. The NFL group also answered the electronic questionnaire at the same time but reflected instead on their current experiences regarding their pedagogical competency and their perceptions of a good university teacher.

The electronic questionnaire consisted of following parts: (1) questions on the respondents' demographic background, (2) open-ended questions focusing on how the university teachers perceive the features and

Figure 1
Participant groups of the study.
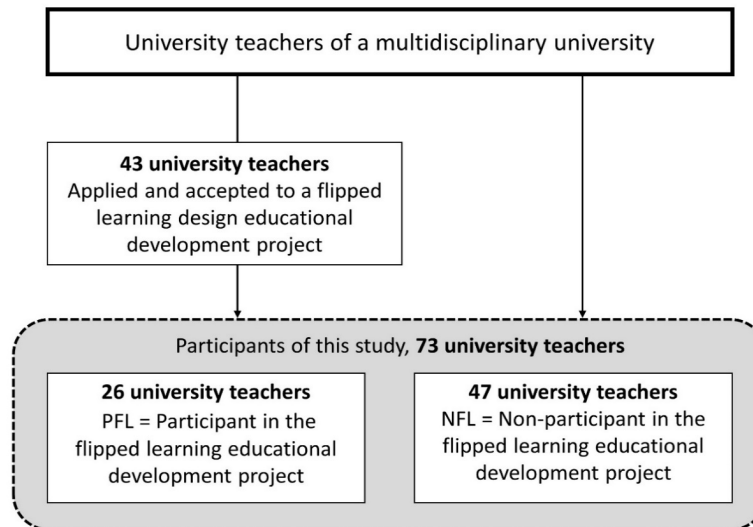
Table 1
Gender and the Amount of Pedagogical Studies in PFL and NFL groups.

Background variable		PFL[*]	NFL[*]	Total
Gender	Female	18	33	51
	Male	8	14	22
Amount of	No studies	2	6	8
pedagogical	Some studies	3	10	13
studies	Ongoing studies	4	8	12
	Completed 25 ECTS credits	3	2	5
	Completed 35 ECTS credits	3	1	4
	Completed 60 ECTS credits	11	20	31
	Total	26	47	73

*PFL = Participant in the flipped learning educational development project, NFL = Non-participant in the flipped learning educational development project.

characteristics of a good university teacher, and (3) two instruments, The *Pedagogical Competency and Professional Development Instrument (PCPD)* and The *Social Reflection and Emotions in Teaching Instrument (SRET)*, by the authors (Pekkarinen & Hirsto, 2017). The teachers answered the open-ended questions before conducting the self-evaluations via the two instruments.

The *PCPD* consisted of 22 items representing the following four sub-scales: (1) Teaching skills, (2) Student guidance and support, (3) Developing teaching and as a teacher, and (4) Expertise and scholarship of teaching. In developing the items for this instrument, we consulted the Pedagogical Competence model of Olsson and Roxå (2013), the

Scholarship of Teaching model of Kreber and Cranton (2000), the TPACK framework of Koehler and Mishra (2008), and the Integrative Pedagogy model of Tynjälä and colleagues (2016).

The *SRET* consisted of 11 items representing two sub-scales: (1) Peer support and social networks, and (2) Emotions in teacher's work. In forming the items for this instrument, we consulted the studies of Handal (1999), Pyörälä and colleagues (2015), and Roxå and Mårtensson (2009) regarding the social aspect of reflection and the role of peers and significant networks in developing as a teacher. Furthermore, the integrative pedagogy model (Tynjälä et al., 2016) highlighting the role of emotions in learning and professional

development, as well as the study by Isopahkala-Bouret (2008) which emphasized the emotional aspect of the experience of expertise, were consulted.

Data Analyses

A mixed methods approach and method triangulation were applied in the data analyses involving both quantitative and qualitative data. First, with the quantitative data, the structures of instruments were examined by explorative factor analysis using the Principal Axis (PA) extraction method with Varimax rotation. For the PCPD instrument, the solution of the four-factor model was selected. However, for the SRET instrument, the two-factor model was not supported by factor analysis (PA), and so the one-factor model was selected. Items that did not load on the factors were investigated as single items. Cronbach's alpha coefficients (Cohen, Manion, & Morrison, 2011) were calculated to test the internal reliability of the scales (Table 2).

The differences between the groups were investigated by the Kruskal-Wallis and Mann-Whitney U tests, which are nonparametric alternatives to one-way ANOVA and the independent samples *t*-test (Cohen et al., 2011; Field, 2009). Nonparametric analysis methods were used due to non-normal distributions of the data. Effect size was calculated using Pearson's r, as this is recommended for nonparametric tests (Field, 2009; Rosenthal, 1991), and the interpretation by W. Lenhard and A. Lenhard (2016), which is modified from those suggested by Cohen (1988) and Hattie (2009), was used to interpret the effect size as follows: (r): <.05 no effect, .05 to .23=small effect, .24 to .36=intermediate effect, and >.37=large effect.

The qualitative data consisted of answers to the open-ended questions of the electronic questionnaire. The answers varied from a few words to half-page-long writings (total 23 sheets, Times New Roman 12 pt., 1.5 spacing). Qualitative content analysis (e.g., Corbin & Strauss, 2008; Gibbs, 2007; Miles, Huberman, & Saldaña, 2014) with open coding was used as the analysis method, and Atlas.fi 8.0 was used as a tool in the process. The analysis unit was a conceptual theme identified in the answers (sometimes being only a few words). The analysis included several rounds of reading and coding of the data. In addition to the data-driven, inductive approach, the data were also compared to research literature after the first rounds of coding, moving back and forth between both sources, hence also making the analysis concept-driven and using a deductive process (Corbin & Strauss, 2008; Gibbs, 2007). This type of approach relates closely to theory-guided content analysis (e.g., Creswell, 1994; Merriam, 2009). After coding the data, the codes were grouped into different themes, categories, and sub-categories. The analysis was conducted principally by the first author, and the second author confirmed the analysis. An intercoder reliability test (Cho, 2008; Gibbs, 2007; Miles et al., 2014; Neuendorf, 2002) was conducted comparing the authors' individual categorizations of the data. The authors reached 90% intercoder agreement and continued discussing the coding and categories until a shared understanding was reached.

After completing the analysis, the total number of mentions of the different themes and categories were calculated. Each respondent could have several mentions per category. Furthermore, the number of respondents mentioning each theme and category were calculated. The Mann-Whitney and Kruskal-Wallis tests (Cohen et al., 2011) were calculated in order to find out the possible differences in the university teachers' perceptions of the features and characteristics of a good university teacher between the two participant groups and according to the number of pedagogical studies. Furthermore, the Mann-Whitney U test was conducted to investigate how the university teachers' perceptions of a good university teacher related to their experienced pedagogical competency. For the analysis, the sum variables were re-scaled from five-step scales to two-step or three-step scales, merging answer categories to increase the answer frequencies in order to be able to conduct the analysis.

Results

Features and Characteristics of a Good University Teacher Perceived by the University Teachers

Four main themes were identified from the university teachers' perceptions of the characteristics of a good university teacher. These included the following: 1) Domains of Knowledge, 2) Professional Roles, 3) Continuous Professional Development, and 4) Personal Characteristics.

Domains of Knowledge (148 mentions) was the most common theme, and five knowledge domains of a good university teacher were identified. *Pedagogical knowledge* (52 mentions) was the most mentioned domain of knowledge. The university teachers perceived pedagogical knowledge as an understanding of students' learning and of how a teacher can facilitate student learning. According to the participants, pedagogical knowledge consists of pedagogical skills and abilities, such as being able to motivate and inspire students, being able to recognize one's approach to learning and teaching, supporting students' active role and their critical thinking, considering different learners, guiding large student groups, and giving feedback: "The most important goal in being a university teacher is that the teacher is able to encourage and motivate the students to think creatively and critically and develop their thinking in the future" (Teacher 112).

Table 2

Sum Variables and Items Describing Different Areas of Pedagogical Competency

Sum variables and their items	Total n = 73 M (SD)	Cronbach's Alpha
Teaching skills[1] (PCPD)	3.78 (.70)	.85
1. To plan teaching and use different teaching and assessment methods		
2. Identify my conception of learning and apply it to my teaching		
3. Influence the construction of a positive and supportive learning environment		
4. Utilize ICT in my teaching		
5. Give individual feedback to students		
6. Effectively utilize pedagogical literature in developing my teaching		
7. Identify ethical questions in my work as a teacher		
Student guidance and support[1] (PCPD)	4.00 (.71)	.84
8. Guide student groups		
9. Support and guide different learners		
10. Guide the students to take responsibility for their own learning		
11. Operate in different teaching and guidance interaction situations		
Developing teaching and as a teacher[1] (PCPD)	4.09 (.64)	.80
12. Utilize my experiences (e.g., working life) in my teaching		
13. Recognize my development needs as a teacher		
14. Recognize my strengths as a teacher		
15. Develop my teaching based on student feedback		
16. Utilize collegial and peer feedback in developing my teaching		
17. Systematically collect student feedback on my teaching		
Expertise and SoTL[1] (PCPD)	3.77 (.79)	.78
18. Recognize the strengths of my subject field expertise in my teaching		
19. Utilize the research or art of my own subject field or my other expertise in my teaching		
20. Consider students' learning outcomes in relation to the research literature on teaching and learning		
21. Seek support for planning and implementing my teaching from my own subject field's professional literature		
22. Publish the pedagogical practice of my teaching and my own subject field by, e.g., writing pedagogical articles or participating in pedagogical conferences		
Social reflection[2] (SRET)	4.32 (.86)	.90
1. Discuss with my colleagues the material and choices of teaching methods when planning my teaching		
2. Discuss my teaching with one or more colleagues		
3. Ponder my teaching and the challenges of it together with my colleagues		
4. Cooperate with students, colleagues and other experts when planning my teaching		
Single items: (parts of SRET)		
Experiencing joy when succeeding in teaching[2]	4.44 (.73)	
Active participation in teaching development in one's work community[2]	4.26 (.93)	

1) Scale: 1= completely disagree, 2= somewhat disagree, 3= not disagreeing or agreeing, 4= somewhat agree, and 5= completely agree.
2) Scale: 1= competency is not recognizable, 2= insufficient competency, 3= developing competency, 4= good competency, and 5= excellent competency

The second most mentioned knowledge domain was *social knowledge* (42 mentions). Social knowledge is perceived as skills and abilities related to interpersonal interaction with other people, including competencies such as being able to communicate and interact with colleagues and students, and being able to network and cooperate, and share and engage in collegial collaboration: "A good university teacher is willing to share their teaching with other teachers, collaborate, and even step into a totally new field of expertise" (Teacher 58). Furthermore, a good university teacher has *Content knowledge* (32 mentions), indicating that a university teacher should master the subject content of the field in which they teach: "[A good university teacher] manages the subject in an excellent way" (Teacher 15).

Closely related to pedagogical knowledge, a good university teacher should also possess *Instructional knowledge* (18 mentions), that is, for example, know how to plan their teaching, choose suitable teaching and assessment methods, and create different learning environments. Instructional knowledge is thus perceived as knowledge of how to plan and design one's teaching: "The core of all teaching should be well aligned and high-quality teaching that supports student learning. This includes teaching methods, assessment of learning and the whole variety of learning environments" (Teacher 143).

In addition, there were four mentions articulating that a good university teacher should have T*echnological knowledge*. The teacher should be able to utilize ICT and digital tools in teaching: "… [A good university teacher] possesses abilities to utilize new digital tools in teaching" (Teacher 1).

Professional roles (88 mentions) was the second most mentioned theme in the university teachers' answers, and six different roles of university teacher were identified. *Subject field expert* (36 mentions) was the role mentioned most often. Related to subject field expertise, the university teachers emphasized that a good university teacher is also a *Teacher-as-researcher* (10 mentions) who actively conducts research and utilizes research in their teaching: "Being a good university teacher includes expertise in the subject field taught and the possibility to conduct related research (Teacher 140)." The second and third most mentioned professional roles of a university teacher were *Pedagogical expert* (15 mentions), which highlighted the importance of pedagogical knowledge, skills and training, and *Facilitator and advisor of learning* (14 mentions) describing a good university teacher as an enabler of learning: "Being a good university teacher involves being a pedagogical expert (knowledge, skills, attitude, and ethicality) in order to guide, facilitate and develop different possibilities of learning" (Teacher 141). Furthermore, a good university teacher was perceived to be an *Expert in the practice of one's field* (11 mentions), emphasizing that, besides subject field and pedagogical expertise, practical work experience and

knowing the practice of one's field also offers valuable aspects in one's teaching: "Being a good university teacher includes planning teaching based on science and theory, but it is also an ability to apply theory to practical questions. Having practical experience in one's subject field is not a bad thing" (Teacher 46). There were also two mentions of university teachers as *Administrative experts*.

Continuous professional development (69 mentions) was the third theme that emerged from the data. In their answers, the university teachers highlighted that a good university teacher is a continuously developing expert possessing a *Positive attitude and interest* (32 mentions) towards teaching, their own subject field, and learning: "A good university teacher has a positive attitude towards the subject taught and this enthusiasm also shows in their teaching" (Teacher 9). "A good university teacher is interested in teaching and especially guiding student learning" (Teacher 150).

Furthermore, according to the participants, *Goals for developing one's expertise and competencies* (30 mentions), whether considered in general or more specifically to developing subject field expertise or pedagogical expertise, need to be identified and reflected on. In addition, the university teachers perceived that to be able to develop as a university teacher, a good university teacher should recognize the *Prerequisites for developing one's expertise and competencies* (7 mentions), such as organizational support and the importance of collecting and utilizing feedback: "A good university teacher is a creative expert who is able to reflect on their own teachership and subject field expertise and aims to continuously develop their expertise." (Teacher 8) "[A good university teacher] continuously keeps their teaching up-to-date, develops their teaching, collects feedback systematically and utilizes the feedback in developing their teaching." (Teacher 147)

Personal Characteristics of a good university teacher (54 mentions) was the fourth theme. A good university teacher was perceived to possess *Characteristics related to others*—empathic and social (32 mentions)—that is, characteristics enabling and facilitating interaction with others, such as being empathic, approachable, supportive, and social:

"[A good university teacher] is approachable and warm-hearted" (Teacher 131). A good university teacher should be able to listen actively and be creative, that is, to have *Characteristics related to cognitive functions*: active and creative (12 mentions): "A good university teacher is creative, tries new things and is professional" (Teacher 106).

Furthermore, a good university teacher should possess *Characteristics related to self:* open-minded and flexible (10 mentions), that is, a teacher should be

flexible, patient, and open-minded: "[A good university teacher] is flexible, patient…" (Teacher 120).

When exploring the number of respondents mentioning each theme and category (Table 3), the results were similar to those of the total number of mentions of the themes and categories presented above. However, Content knowledge and Goals for developing one's expertise were mentioned by a few more respondents than Social knowledge and Positive attitude and interest, whereas, in terms of the total number of mentions, Social knowledge and Positive attitude and interest were mentioned more often.

In order to examine how the university teachers' perceptions of a good university teacher varied between the PFL and NFL groups, a non-parametric Mann-Whitney test was conducted. The teachers in the PFL group mentioned statistically significantly more often characteristics related to the theme of Continuous professional development, that is, Positive attitude and interest (U=438.00, Z=-2.40, p=.016, r =.28), Goals (U=464.00, Z =-2.01, p=.044, r=.24), and Prerequisites for developing one's expertise and competencies (U=519.50, Z =-2.07, p=.039, r =.24) than the teachers in the NFL group. Furthermore, the possible differences between groups based on the amount of pedagogical studies completed were examined. For the analysis, the amount of pedagogical studies was re-grouped into three categories as follows: no studies, less than 25 ECTS credits (includes some or ongoing studies) and 25–60 ECTS credits (includes 25 ECTS, 35 ECTS, and 60 ECTS credits). University teachers with 25–60 ECTS credits of pedagogical studies mentioned statistically significantly more often Social knowledge (U=357.50, Z =-2.25, p=.024, r=.28) as a domain of knowledge of a good university teacher than teachers with less than 25 ECTS credits of pedagogical studies. The effect sizes of the found differences were intermediate (M).

University Teachers' Self-evaluations of Their Experienced Pedagogical Competency as Teachers

In the university teachers' self-evaluations, *Experiencing joy when succeeding in teaching* (single item, mean 4.44), relating to the positive emotions of teaching, and *Active participation in teaching development in one's work community* (single item, mean 4.26) relating to teaching development (Table 4) were scored highly. In addition, the university teachers evaluated to actively engage in *Social reflection* (mean 4.32), that is, discussing and pondering their teaching and the challenges of their teaching with colleagues, and cooperating with their students, colleagues and other experts when planning their teaching.

In addition, the university teachers evaluated their competency to be high in *Developing teaching and as a teacher* (mean 4.09) and in *Student guidance and*

support (mean 4.00). They evaluated themselves as being well able to utilize their experiences (e.g., working life) in their teaching and to systematically collect and utilize student feedback to develop their teaching. Furthermore, they perceived that they could recognize their strengths and needs to develop as teachers. Regarding student guidance and support, the university teachers evaluated themselves as being most competent in operating in different interaction situations and in guiding student groups.

The university teachers scored mediocre on *Teaching skills* (mean 3.78) and *Expertise and scholarship of teaching and learning* (mean 3.77). Regarding teaching skills, they evaluated themselves as being able to give individual feedback to students and to influence the construction of a positive and supportive learning environment. Furthermore, they evaluated themselves able to identify ethical issues regarding their teaching. The university teachers evaluated their competency to be lower in utilizing pedagogical literature and ICT in their teaching and in developing teaching, these being evaluated at a developing level in general. The self-evaluations related to expertise and SoTL show that the university teachers evaluated themselves to be well able to utilize research in their teaching and recognized their subject field expertise as a strength in their teaching. Publishing and writing pedagogical articles and considering student learning in light of the research literature on teaching and learning were not scored highly, and the university teachers evaluated their competency in these respects to be at a developing level in general.

Statistically significant differences (p<.05) were identified according to participation in the flipped learning development project and the number of pedagogical studies completed. The PFL (mean 3.44) evaluated their competency in Expertise and scholarship of teaching and learning statistically significantly lower than the NFL (mean 3.95, p=.017). On the other hand, the PFL (mean 4.69) evaluated themselves to participate more *Actively in teaching development actions* in their working communities than the NFL (mean 4.02, p=.003). The effect sizes of the found differences were intermediate (M). In addition, statistically significant differences in Teaching skills (p=.002) and in Student guidance and support (p=.044) were identified according to the number of pedagogical studies completed. Further investigation of the differences between the groups (Mann-Whitney U test) revealed that university teachers with 60 ECTS credits of completed pedagogical studies (mean 4.10) evaluated their teaching skills statistically significantly higher than teachers with no (mean 3.50, p=.009), some (mean 3.42, p=.006) or ongoing (mean 3.33, p=.000) pedagogical studies. The effect sizes of the found differences were intermediate and large.

Table 3

Number of Respondents Mentioning the Main Themes and Categories Describing the Features and Characteristics of a Good University Teacher According to Participation in the educational Development Project and the Amount of Pedagogical Studies.

Themes	Categories	All N=73 F	PFL* n=26 f	NFL* n=47 f	No studies n=8 f	Less than 25 credits n=25 f	25 - 60 ECTS credits n=40 f
Domain of Knowledge	Pedagogical knowledge	35	14	21	1	13	21
	Social knowledge	29	14	15	2	6	21
	Content knowledge	32	12	20	2	11	19
	Instructional knowledge	15	8	7	1	3	11
	Technological knowledge	4	0	4	0	1	3
	Total	115	48	67	6	34	75
Professional Roles	Subject field expert	36	11	25	2	11	23
	Pedagogical expert	15	8	7	0	3	12
	Facilitator and advisor of learning	14	6	8	0	4	10
	Expert in the practice of one's subject field	11	6	5	1	1	9
	Teacher-as-researcher	10	3	7	0	2	8
	Administrative expert	2	1	1	0	1	1
	Total	88	35	53	3	22	63
Continuous Professional development	Positive attitude and interest	26	14	12	3	9	14
	Goals of developing ones' expertise and competencies	28	14	14	2	8	18
	Prerequisites for developing one's expertise and competencies	7	5	2	0	2	5
	Total	61	33	28	5	19	37
Personal Characteristics	Characteristics related to others: Empathic and social	25	6	19	1	8	16
	Characteristics related to self: Open-minded and flexible	8	3	5	2	2	4
	Characteristics related to cognitive functions: Active and creative	12	4	8	1	4	7
	Total	45	13	32	4	14	27

*PFL = Participants in the flipped learning design educational development project, NFL = Non-participants in the flipped learning design educational development project.

Table 4

University Teachers' Self-evaluation of Pedagogical Competency Areas, and statistically Significant Differences (p<.05) According to Background Variables.

Pedagogical competency area	Mean total	Background variable / Statistically significant difference (p<.05)
Experiencing joy when succeeding in teaching (single item)	4.44	No statistically significant difference between groups according to background variables
Social reflection	4.32	No statistically significant difference between groups according to background variables
Active participation in teaching development in one's work community (single item)	4.26	Participation in development project — Participant (PFL) (mean 4.69, U=371.00, Z=2.92, p=.003, r=.34); Non-participants (NFL) (mean 4.02)
Developing teaching and as a teacher	4.09	No statistically significant difference between groups according to background variables
Student guidance and support	4.00	Amount of pedagogical studies — No studies (mean 3.50, U=59.00, Z=-2.48, p=.013, r=.29); Ongoing studies (mean 3.75, U=114.50, Z=-2.25, p=.024, r=.26); Completed 60 ECTS credits (mean 4.23)
Teaching skills	3.78	Amount of pedagogical studies — No studies (mean 3.50, U=61.50, Z=-2.61, p=.009, r=.31); Some studies (mean 3.42, U=102.50, Z=-2.73, p=.006, r=.32); Ongoing studies (mean 3.33, U=76.00, Z=-3.60, p=.000, r=.42); Completed 60 ECTS credits (mean 4.10)
Expertise and scholarship of teaching and learning	3.77	Participation in development project — Participants (PFL) (mean 3.44, U=373.00, Z=-2.38, p=.017, r=.29); Non-participants (NFL) (mean 3.95)

Furthermore, teachers with 60 ECTS of pedagogical studies (mean 4.23) evaluated their competency in student guidance and support higher than teachers with no (mean 3.50, *p*=.013) and ongoing (mean 3.75, *p*=.024) pedagogical studies. The effect sizes of the found differences were intermediate and large.

There were no statistically significant differences in how the teachers evaluated their competencies in Developing teaching and Social reflection or in Experiencing joy when succeeding in teaching with respect to participation in the flipped learning development project or amount of pedagogical studies completed.

Features and Characteristics of a Good University Teacher in Relation to Experienced Pedagogical Competency of the University Teachers

Our results show (Figure 2) that those university teachers who evaluated themselves as more actively engaging in Social reflection with their colleagues and peers more often mentioned *Social knowledge* as a domain of knowledge of a good university teacher (*p*=.045). *Pedagogical knowledge*, in turn, was mentioned more often by university teachers who self-evaluated their Teaching skills as good or excellent (*p*=.043).

Teachers who evaluated their competency to be good or excellent in Developing teaching *and as a teacher* more often mentioned the role of *Subject field expert* (*p*=.019) as one of a university teacher's professional roles, *Goals for developing one's expertise and competencies* (*p*=.027) in relation to continuous professional development, and university teacher's personal *Characteristics related to others*, such as being empathic and social (*p*=.009). Furthermore, teachers who considered themselves to *Actively participate in teaching development in their work communities* more often mentioned the roles of *Pedagogical expert* (*p*=.034) and *Facilitator and advisor of learning* (*p*=.043) as professional roles of a university teacher, as well as *Positive attitude and interest* towards own subject field, teaching and learning (*p*=.008) in relation to continuous professional development. The effect sizes were intermediate (M).

Discussion and Conclusions

A Good University Teacher Has a Wide Knowledge Base and Various Professional Roles

The findings of this study show that the "ideal" of a good university teacher is multifaceted: a good university teacher has a wide knowledge base including different domains of knowledge, has various professional roles, and possesses versatile personal characteristics. Pedagogical and instructional knowledge have been similarly identified as domains of

a university teacher by Kreber and Cranton (2000). In their TPACK framework, Koehler and Mishra (2008; see also Koehler et al., 2014), in turn, identified content, pedagogical and technological knowledge domains. Their definition of pedagogical knowledge is, however, wider than in our study, also including some aspects of instructional knowledge. In our study, technological knowledge was also recognized, but only by a few respondents. We propose three reasons for this. First, the university teachers might take technical knowledge for granted as a self-evident aspect of their everyday teaching environment. Secondly, the university teachers might feel that the technological environment is under such a rapid and constant change that the primary role of the teacher with respect to technology is merely to adjust themselves to the specific technological contexts in which they have to teach. Thirdly, the discourse of student-centered teaching and learning currently focuses so strongly on interaction and interactive learning that technology is perhaps seen to be marginal with respect to good teaching. Whatever the reasons for not perceiving technological knowledge more strongly may be, further attention to this is required in the future research.

The university teachers perceived a good university teacher as having various professional roles. Even though the role of subject field expert was by far the most recognized professional role, it was evident that being solely a subject field expert with deep content knowledge is too narrow a perspective for a good university teacher. Our findings reveal that the university teachers perceived a good university teacher also to be a pedagogical expert and facilitator of learning among others. In this respect, our findings are in line with previous research concerning the characteristics of a good university teacher (e.g., Duţă et al., 2014; Hirsto et al., 2013; Su & Wood, 2012).

Social Knowledge and Social Reflection are Central to Developing and Experiencing Pedagogical Competency as a University Teacher

One of the main findings in our study is that social knowledge was perceived as one of the domains of knowledge of a good university teacher. Compared to previous studies regarding the domains of knowledge in teaching (e.g. Koehler & Mishra, 2008; Kreber & Cranton, 2000; Shulman, 1986) and pedagogical competence/y models of a good university teacher (e.g. Apelgren & Giertz, 2010; Olsson & Roxå, 2013), this is new, as social knowledge has not been previously identified as a domain of knowledge of a university teacher, as perceived and defined by the university teachers in our study. Tynjälä and colleagues (2016) suggested in their integrative pedagogy model that sociocultural knowledge is one of the key components

Figure 2

Statistically significant relations between the characteristics of a good university teacher perceived by the university teachers and their experienced pedagogical competency.

of expertise. However, their model is a theoretical construction and does not represent teachers' perceptions about the components of expertise.

The social aspect was also evident in the university teachers' self-evaluations of their own pedagogical competency, as social reflection was evaluated highly, indicating that the university teachers actively engage in social reflection with their colleagues and peers. Teachers who evaluated themselves actively engaging in social reflection also more often mentioned social knowledge as a characteristic knowledge domain of a good university teacher. According to our results, it seems that social reflection is central to how the teachers construe, experience and develop their pedagogical competency. This is in line with previous research recognizing, that significant networks and meaningful conversations are important in how teachers create and maintain their understanding of teaching and learning (Boyd &Harris, 2009; Olsson & Roxå, 2013; Pyörälä et al., 2015; Pedrosa-de-Jesus et al., 2017; Roxå & Mårtensson, 2009) and perceive their teacher identity (Uitto et al., 2015).

Furthermore, our results suggest that awareness of social knowledge and reflection develops in line with

the number of pedagogical studies. This idea is supported by previous research by Nevgi and Löfström (2015), who identified university teachers' reflection on pedagogical issues and on teaching to be related to the development of teacher identity as a university teacher during long-term participation in pedagogical studies. It might be that teachers who are engaged in pedagogical studies become accustomed to reflecting on their teaching with their colleagues (e.g., Hirsto et al., 2013; Pekkarinen & Hirsto, 2017). This may have influenced their perception of a good university teacher as reflective and able to collaborate with colleagues, and thus having social knowledge and related competencies.

Continuous Professional Development is Characteristic of a Good University Teacher

In our study, a good university teacher was perceived to be a developing expert continuously reflecting and developing one's expertise. This perception was especially highlighted by the participants in the educational development project on flipped learning. Similar findings were found with the

university teachers' self-evaluations of their pedagogical competency. The university teachers evaluated their own ability to develop their teaching and as teachers to be high in general and evaluated themselves to be active participants in teaching development in their work communities. The participants in the educational development project, however, evaluated their ability and activity more highly than the non-participants. Interestingly, although the participants in the educational development project evaluated themselves to be active in teaching development, they evaluated their expertise and scholarship of teaching and learning to be lower than the non-participants. One possible explanation for this is that the participants in the project are more critical of their own teaching than non-participants and, in order to improve their teaching, they have participated in a teaching development program.

In addition, the university teachers perceived that developing one's expertise and pedagogical competency should be target-oriented and that a good university teacher benefits from collegial collaboration in developing their teaching and as a teacher. Personal characteristics, such as being social, empathic, and approachable, were perceived to facilitate this collaboration. These findings are in line with the pedagogical competence model by Olsson and Roxå (2013), in which becoming an excellent teacher is described as a continuous process requiring continuous observations and reflection on the practice of teaching, and a competent teacher is seen to involve promoting cooperation and engaging in pedagogical discussions with colleagues in order to develop his or her own teaching.

Based on our findings, educational development projects seem to attract teachers who already have a positive attitude towards teaching and learning and are interested in developing their teaching. As participants and non-participants of the development project differed in how they considered their expertise as teachers, it seems that these kinds of educational development projects can act as gateways to developing teaching skills through developing teaching. This seems to apply especially to those teachers who did not recognize their pedagogical competency and expertise and who had not systematically developed their teaching prior to participating in the educational development project. Furthermore, educational development projects are potentially important not only for developing one's teaching and as a teacher, but also for facilitating the development of a scholarly teaching and learning culture at the university and department level while also supporting the development of the scholarship of curriculum practice, as active developers can act as change agents in their teaching communities (cf. Hubball et al., 2008).

The Ideal of a University Teacher Lacks an Emotional Aspect

Our study shows that the university teachers perceived the features and characteristics of a good university teacher mainly in consistence with their self-evaluations of their own pedagogical competency. The ideal of a good university teacher seems, however, still quite cognitively defined. One of the main findings of our study is that the university teachers did not perceive emotions or emotional aspects among the characteristics of a good university teacher, yet when reflecting on their own pedagogical competency, they reported positive emotions.

Despite the fact that the role of emotions has been recognized in the recent research literature on higher education (e.g., Arpiainen et al., 2013; Tynjälä et al., 2016), it seems that the ideal of a good university teacher does not include an emotional aspect when defined and perceived by university teachers themselves. The teachers' self-evaluations in our study support the idea that emotions are important in experiencing one's pedagogical competency and developing as a teacher. This is in line with the idea that, besides knowledge and skills, a teacher has to be able to experience confidence in their expertise when acting as a teacher and that emotions affect how teachers experience themselves as teachers (cf. Boud et al., 1985; Isopahkala-Bouret, 2008).

Limitations of This Study

One limitation of our study is that the study participants had completed a considerable amount of pedagogical studies and, consequently, they represent largely pedagogically aware university teachers. Thus, the findings of our study may not be generalized to reflect typical university teachers' perceptions of a good university teacher. However, the amount of pedagogical studies completed was similarly high in both participant groups. Furthermore, the study was based on self-assessments and limited to the early phases of the educational development project. In future studies, a follow-up study would be needed to examine the perceptions and evaluations at the end of the educational development project. In addition, further research is needed to gain a deeper understanding of the role of social reflection and emotions in developing as a teacher and in pedagogical competency.

Conclusion and Practical Implications

In examining the features and characteristics of a good university teacher as perceived by university teachers and how the university teachers self-evaluated their own

pedagogical competency, this study offers important insights for understanding, defining, and evaluating university teachers' pedagogical competency. The results of this study are relevant especially for universities in designing their strategical academic development processes, for example, when planning supportive actions for university teachers' development as teachers and for developing their pedagogical competency in different formal and more informal contexts. Furthermore, the results of this study may be relevant when considering the assessment of pedagogical competency, for example, in tenure and lecturer track processes.

When planning pedagogical training and development actions, such as educational development projects, the possibility to collaborate, have meaningful conversations, and form networks with peers should be strongly considered, as social reflection and social knowledge were perceived and reflected to be central to experiencing and developing one's pedagogical competency. Furthermore, emotions seem to play an important role in how university teachers experience their pedagogical competency and engage in the development of teaching and teaching skills; educational development projects therefore need to be designed so that teachers find it easy to enjoy the changing pedagogy along the process of developing their teaching.

References

Annala, J., & Mäkinen, M. (2011). The research-teaching nexus in higher education curriculum design. *Transnational Curriculum Inquiry, 8*(1), 3–21. Retrieved from http://nitinat.library.ubc.ca/ojs/index.php/tci

Apelgren, K., & Giertz, B. (2010). Pedagogical competence: A key to pedagogical development and quality in higher education. In Å. Ryegård, K. Apelgren & T. Olsson (Eds.), *A Swedish perspective on pedagogical competence* (pp. 25-38). Uppsala, SE: Uppsala University.

Arpiainen, R-L., Lackéus, M., Täks, M., & Tynjälä, P. (2013). The sources and dynamics of emotions in entrepreneurship education learning process. *Trames*, *17*(4), 331–346. doi:10.3176/tr.2013.4.02

Ashwin, P., Boud, D., Coate, K., Hallett, F., Keane, E., Krause, K.-L., ... Tooher, M. (2015). *Reflective teaching in higher education*. London, UK: Bloomsbury Academic.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191–215. doi:10.1037/0033-295X.84.2.191

Barnett, R., & Coate, K. (2005). *Engaging the curriculum in higher education*. Maidenhead, England; New York, NY: Society for Research into Higher Education: Open University Press.

Biggs, J. B., & Tang, C. (2011). *Teaching for quality learning at university* (4th ed.). Maidenhead, England: Open University Press.

Boud, D., Keogh, R., & Walker, D. (1985). Promoting reflection in learning: A model. In D. Boud, R. Keogh & D. Walker (Eds.), *Reflection: Turning experience into learning* (pp. 18–41). London, UK: Kogan Page.

Boyd, P., & Harris, K. (2010). Becoming a university lecturer in teacher education: Expert school teachers reconstructing their pedagogy and identity. *Professional Development in Education, 36*(1-2), 9–24. doi:10.1080/19415250903454767

Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate*. Princeton, NJ: Carnegie Foundation for the Advancement of Teaching. Retrieved from http://files.eric.ed.gov/fulltext/ED326149.pdf

Brookfield, S. (1995). *Becoming a critically reflective teacher*. San Francisco, CA: Jossey-Bass.

Cho, Y. (2008). Intercoder reliability. In P. J. Lavrakas (Ed.), *Encyclopedia of survey research methods* (pp. 345–346). Thousand Oaks, CA: SAGE.

Cohen, J. (1988). *Statistical power analysis for the behavioral science* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education* (7th ed.). London, UK: Routledge.

Corbin, J. M., & Strauss, A. L. (2008). *Basics of qualitative research* (3rd ed.). Los Angeles, CA: SAGE.

Creswell, J. W. (1994). *Research design: Qualitative & quantitative approaches*. Thousand Oaks, CA: SAGE.

Duţă, N., Pânişoară, G., & Pânişoară, I. O. (2014). The profile of the teaching profession – Empirical reflections on the development of the competences of university teachers. *Procedia – Social and Behavioral Sciences, 140*, 390–395. doi:10.1016/j.sbspro.2014.04.440

Dysart, S., & Weckerle, C. (2015). Professional development in higher education: A model for meaningful technology integration. *Journal of Information Technology Education: Innovations in Practice*, *14*, 255–265. Retrieved from http://www.jite.org/documents/Vol14/JITEv14IIPp 255-265Dysart2106.pdf

Edwards, R., & Nicoll, K. (2006). Expertise, competence and reflection in the rhetoric of professional development. *British Educational Research Journal, 32*(1), 115–131. doi:10.1080/01411920500402052

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Los Angeles, CA: SAGE.

Fleck, R., & Fitzpatrick, G. (2009). Teachers' and tutors' social reflection around SenseCam images. *International Journal of Human-Computer Studies*, *67*, 1024–1036. doi:10.1016/j.ijhcs.2009.09.004

Fraser, J. M., Timan, A. L., Miller, K., Dowd, J. E., Tucker, L., & Mazur, E. (2014). Teaching and physics education research: Bridging the gap. *Reports on progress in physics. Physical Society (Great Britain), 77*(3), 032401. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/24595011

Garavan, T. N., & McGuire, D. (2001). Competencies and workplace learning: Some reflections on the rhetoric and the reality. *Journal of Workplace Learning, 13*(4), 144–164. doi:10.1108/13665620110391097

Gibbs, G. R. (2007). *Analyzing qualitative data.* London, UK: SAGE. doi:10.4135/9781849208574

Handal, G. (1999). Consultation using critical friends. *New Directions for Teaching and Learning, 79,* 59–70. doi:10.1002/tl.7907

Hattie, J. (2009). *Visible learning meta-study.* London, UK: Routledge.

Hatton, N., & Smith, D. (1995). Reflection in teacher education: Towards definition and implementation. *Teaching and Teacher Education, 11*(1), 33–49. doi:10.1016/0742-051X(94)00012-U

Healey, M. (2000). Developing the scholarship of teaching in higher education: A discipline-based approach. *Higher Education Research & Development, 19*(2), 169–189. doi:10.1080/072943600445637

Heikkinen, H. L. T., Tynjälä, P., & Kiviniemi, U. (2011). Integrative pedagogy in practicum. In T. Mattsson (Ed.), *A practicum turn in teacher education* (pp. 91–112). Rotterdam, NL: SensePublishers.

Henson, R. K. (2001). *Teacher self-efficacy: Substantive implications and measurement dilemmas.* Keynote presented at the annual meeting of the Educational Research Exchange, College Station, TX. Retrieved from http://www.uky.edu/~eushe2/Pajares/EREkeynote.PDF

Hirsto, L. (2013). Palautepohjainen opetuksen kehittäminen ja laatu [Feedback-based educational development and quality of education]. In J. T. Hakala & K. Kiviniemi (Eds.), *Vuorovaikutuksen jännitteitä ja oppimisen säröjä: aikuispedagogiikan haasteiden äärellä [Tensions of interaction and cracks in learning: Meeting the challenges of adult pedagogy]* (pp. 147–162). Kokkola, FI: Jyväskylän yliopisto, Kokkolan Yliopistokeskus Chydenius,

Hirsto, L., Lampinen, M., & Syrjäkari, M. (2013). Learning outcomes of university lecturers from a process-oriented university pedagogical course. *Trames, 17*(4), 347–365. doi:10.3176/tr.2013.4.03

Hirsto, L., Sointu, E., Valtonen, T., Saarelainen, M., & Team Ameba. (2018). *University teachers' experiences of the processes of educational development.* Paper presented at ECER conference, Bolzano.

Hogg, C. (2013). *Competence and competency frameworks factsheet.* Retrieved from http://www.cipd.co.uk/hr-resources/factsheets/competence-competency-frameworks.aspx

Hubball, H., & Gold, N. (2007). The scholarship of curriculum practice and undergraduate program reform: Integrating theory into practice. *New Directions for Teaching and Learning, 112,* 5–14. doi:10.1002/tl.293

Isopahkala-Bouret, U. (2008). Asiantuntijuus kokemuksena [Expertise as an experience]. *Aikuiskasvatus, 28*(2), 84–93.

Koehler, M. J., & Mishra, P. (2008). Introducing TPACK. In AACTE Committee on Innovation & Technology (Ed.), *Handbook of technological pedagogical content knowledge for educators* (pp. 3–29). New York, NY: Routledge.

Koehler, M. J., Mishra, P., Kereluik, K., Shin, T. S. & Graham, C. R. (2014). The technological pedagogical content knowledge framework. In J. Spector, M. Merrill, J. Elen & M. Bishop (Eds.), *Handbook of research on educational communications and technology* (pp. 101–111). New York, NY: Springer. doi:10.1007/978-1-4614-3185-5_9

Kreber, C., & Cranton, P. A. (2000). Exploring the scholarship of teaching. *The Journal of Higher Education, 71*(4), 476–495. doi:10.2307/2649149

Kushner Benson, S. N., & Ward, C. L. (2013). Teaching with technology: Using TPACK to understand teaching expertise in online higher education. *Journal of Educational Computing Research, 48*(2), 153–172. doi:10.2190/EC.48.2.c

Le Deist, F. D., & Winterton, J. (2005). What is competence? *Human Resource Development International, 8*(1), 27–46. doi:10.1080/1367886042000338227

Lenhard, W. & Lenhard, A. (2016). *Calculation of effect sizes.* Retrieved from https://www.psychometrica.de/effect_size.html

Mäkinen, M., & Annala, J. (2010). Osaamisperustaisen opetussuunnitelman monet merkitykset korkeakoulutuksessa [The many meanings of the competence-based curriculum in higher education]. *Kasvatus & Aika, 4*(4), 41–61. Retrieved from http://www.kasvatus-ja-aika.fi/dokumentit/artikkeli_makinen_&_annala_0712100353.pdf

Mälkki, K. (2011). *Theorizing the nature of reflection* (Doctoral dissertation). University of Helsinki, Institute of Behavioural Sciences, Helsinki. Retrieved from http://urn.fi/URN:ISBN:978-952-10-6982-6

Mälkki, K., & Lindblom-Ylänne, S. (2012). From reflection to action? Barriers and bridges between

higher education teachers' thoughts and actions. *Studies in Higher Education, 37*(1), 33–50. doi:10.1080/03075079.2010.492500

McAlpine, L., Weston, C., Beauchamp, C., Wiseman, C., & Beauchamp, J. (1999). Building a metacognitive model of reflection. *Higher Education, 37,* 105–131. doi:10.1023/A:1003548425626

McClelland, D. (1998). Identifying competencies with behavioral-event interviews. *Psychological Science, 9*(5), 331–339. doi:10.1111/1467-9280.00065

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation* (2nd ed.). San Francisco, CA: Jossey-Bass.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Los Angeles, CA: SAGE.

Neuendorf, K. A. (2002). *The content analysis guidebook*. Thousand Oaks, CA: SAGE.

Nevgi, A., & Löfström, E. (2015). The development of academics' teacher identity: Enhancing reflection and task perception through a university teacher development programme. *Studies in Educational Evaluation, 46,* 53–60. doi:10.1016/j.stueduc.2015.01.003

Olsson, T., Mårtensson, K., & Roxå, T. (2010). Pedagogical competence – A development perspective from Lund University. In Å. Ryegård, K. Apelgren & T. Olsson (Eds.), *A Swedish perspective on pedagogical competence* (pp. 121–132). Uppsala, SE: Uppsala University.

Olsson, T., & Roxå, T. (2013). Assessing and rewarding excellent academic teachers for the benefit of an organization. *European Journal of Higher Education, 3*(1), 40–61. doi:10.1080/21568235.2013.778041

Pedrosa-de-Jesus, H., Guerra, C., & Watts, M. (2017). University teachers' self-reflection on their academic growth. *Professional Development in Education, 43*(3), 454–473. doi:10.1080/19415257.2016.1194877

Pekkarinen, V., & Hirsto, L. (2017). University lecturers' experiences of and reflections on the development of their pedagogical competency. *Scandinavian Journal of Educational Research, 61*(6), 735–753. doi:10.1080/00313831.2016.1188148

Pekrun, R., Frenzel, A. C., Goetz, T., & Perry, R. P. (2007). The control-value theory of achievement emotions: An integrative approach to emotions in education. In P. A. Schutz & R. Pekrun (Eds.), *Emotion in education* (pp. 13–36). Burlington, MA: Academic Press.

Postareff, L., Lindblom-Ylänne, S., & Nevgi, A. (2007). The effect of pedagogical training on teaching in higher education. *Teaching and Teacher Education, 23*(5), 557–571. doi:10.1016/j.tate.2006.11.013

Postareff, L., Lindblom-Ylänne, S., & Nevgi, A. (2008). A follow-up study of the effect of pedagogical training on teaching in higher education. *Higher Education, 56,* 29–43. doi:10.1007/s10734-007-9087-z

Pyörälä, E., Hirsto, L., Toom, A., Myyry, L., & Lindblom-Ylänne, S. (2015). Significant networks and meaningful conversations observed in the first-round applicants for the teachers' academy at a research-intensive university. *International Journal for Academic Development, 20*(2), 150–162. doi:10.1080/1360144X.2015.1029484

Rosenthal, R. (1991). *Meta-analytic procedures for social research* (2nd ed.). Newbury Park, CA: SAGE.

Roxå, T., & Mårtensson, K. (2009). Significant conversations and significant networks - exploring the backstage of the teaching arena. *Studies in Higher Education, 34*(5), 547–559. doi:10.1080/03075070802597200

Russell, T. (2005). Can reflective practice be taught? *Reflective Practice, 6*(2), 199–204. doi:10.1080/03055690903424790

Sandberg, J. (2000). Understanding human competence at work: An interpretative approach. *The Academy of Management Journal, 43*(1), 9–25. doi:10.2307/1556383

Schön, D. (1983). *The reflective practitioner: How professionals think in action*. New York, NY: Basic Books.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*(2), 4–14. doi:10.2307/1175860

Stewart, M. (2014). Making sense of a teaching programme for university academics: Exploring the longer-term effects. *Teaching and Teacher Education, 38,* 89–98. doi:10.1016/j.tate.2013.11.006

Su, F., & Wood, M. (2012). What makes a good university lecturer? Students' perceptions of teaching excellence. *Journal of Applied Research in Higher Education, 4*(2), 142–155. doi:10.1108/17581181211273110

Trigwell, K., & Prosser, M. (2004). Development and use of the approaches to teaching inventory. *Educational Psychology Review, 16*(4), 409-424. doi:10.1007/s10648-004-0007-9

Tynjälä, P., Virtanen, A., Klemola, U., Kostiainen, E., & Rasku-Puttonen, H. (2016). Developing social competence and other generic skills in teacher education: Applying the model of integrative pedagogy. *European Journal of Teacher Education 39*(3), 368–387. doi:10.1080/02619768.2016.1171314

Uitto, M., Kaunisto, S.-L., Syrjälä, L., & Estola, E. (2015). Silenced truths: Relational and emotional dimensions of a beginning teacher's identity as part of the micropolitical context of school. *Scandinavian Journal of Educational Research, 59*(2), 162–176.

Voogt, J., & Roblin, N.P. (2012). A comparative analysis of international frameworks for 21st century competences: Implications for national curriculum policies. *Journal of Curriculum Studies, 44*, 299–321.

Weller, S. (2016). *Academic practice: Developing as a professional in higher education*. London, UK: SAGE. doi:10.1080/00313831.2014.904414

Williams, R. (2009). Gaining a degree: The effect on teacher self-efficacy and emotions. *Professional Development in Education, 35(*4), 601–612. doi:10.1080/19415250903059558

Winterton, J. (2009). Competence across Europe: Highest common factor or lowest common denominator? *Journal of European Industrial Training, 33*(8/9), 681–700. doi:10.1108/03090590910993571

VIRVE PEKKARINEN is a Postgraduate Student at the University of Eastern Finland (UEF). Her research focuses on university teachers' pedagogical competency and the development of and support for developing pedagogical competency. She is an officially qualified, experienced teacher, teacher trainer, and expert in university pedagogy. She has worked several years as a university pedagogical specialist and a teacher trainer in higher education contexts.

LAURA HIRSTO is the professor of education (especially research on general education) at the University of Eastern Finland, and she holds the Title of Docent (equivalent to Associate Professor in US and Commonwealth countries) at the University of Helsinki. Hirsto has conducted research, e.g., on higher education students' motivational and learning processes, teacher learning, and innovative learning environments. She is the coordinator of the European Association of Research on Learning and Instruction (EARLI) Special Interest Group 19 'Religions and Worldviews in Education'.

ANNE NEVGI is a University Lecturer of Higher Education and holds the Title of Docent (equivalent to Associate Professor in US and Commonwealth countries) at the University of Helsinki. She is a research director of two research projects, and her main research interest is on learning landscapes of campuses and educational leadership in higher education. Her other research interests include university teachers' teacher identity and their development in teaching competency, assessment practices in higher education, and sustainability in university teaching and learning. She has published widely in journals such as *Teaching and Teacher Education*, *Higher Education*, *Teaching in Higher Education*, *Assessment & Evaluation in Higher Education*, *Studies in Educational Evaluation*, and *International Journal of Academic Development*.

Acknowledgements

Enhancing Reflective Practice of Student Physical Therapists Through Video-Assisted Self and Peer-Assessment: A Pilot Study

Jeffrey G. Ebert, Jeannette R. Anderson, and Leslie F. Taylor
Mercer University

Reflective practice, in its comprehensive intent, allows a practitioner to make meaning of complex situations. While opportunities for developing reflective thinking are readily available in health professional education programs, opportunities for developing reflective practice abilities are limited. This pilot study was undertaken to address that gap and assess student physical therapists' perceptions of a series of non-graded, video-recorded practice experiences on developing their reflective practice abilities. The study used a quasi-experimental design with collection of quantitative and qualitative data. Physical therapy students reported an increased awareness of their verbal and nonverbal strengths and areas for improvement, their ability to give and receive feedback to a peer, and ways to improve their psychomotor skill performance. Students identified that they would have liked to have initiated this type of self- and peer-assessment earlier in the curriculum. The assignment served as a specific method of teaching reflective practice in the physical therapy curriculum and has broader application for other healthcare and higher education programs.

Reflective practice, in its comprehensive intent, allows a practitioner to make meaning of complex situations and enables learning from experience (Dewey, 1933). The "reflective practitioner" is a term that has remained in high regard since Donald Schön's presentation of the concept (Schön, 1983). Building on John Dewey's initial work in which the constructs surrounding external thinking and actions versus internal thinking and actions were first introduced, Schön presented the foundational concepts of reflection that remain in the forefront of higher education literature. Specifically, he presented the concepts of "reflection-ON-action," in which the consideration of the event occurs afterward and "reflection-IN-action," in which the responsive thinking occurs in real time (Dewey, 1933; Schön, 1983, 1987).

Schön's pivotal work set the stage for multiple iterations of ways to measure and assess reflective practice, some of which resulted in a growth of literature addressing the related concepts of reflection, critical thinking/reflection, and reflexivity (Finlay, 2008; Mann, Gordon, & MacLeod, 2009). One of the main challenges that becomes evident when reviewing the literature is the inconsistent use of terminology, as various authors present different models for consideration. While there may be disagreement from authors regarding the meaning of various terms, the one thing that is agreed upon is the problem of terms being poorly defined or used interchangeably. One author's use of the term "reflection" is another's definition of "critical thinking," one's "clinical reasoning" is another's "reflective thinking," and so on. Finlay (2008) agrees that "the lack of consensus and clarity about the concept of reflective practice [results in] the proliferation of different versions and models to operationalise reflective practice" (p. 7). Christopher Johns (2009), in the third edition of his text *Becoming a*

Reflective Practitioner, summarizes the evolution of the 15 iterations of his own model's progression of teaching reflective practice to nurses, from a somewhat prescriptive method to the current teachings which include the term "mindfulness" at its core.

The process of teaching reflection, as demonstrated in the literature, appears to be multi-factorial (Braine, 2009; Burton, 2000; Dewey, 1933; Finlay, 2008; Kofoed, 2011; Mann et al., 2009; McCarthy, Cassidy, & Tuohy, 2013; Sobral, 2000). In her discussion paper for the Practice-based Professional Learning Centre, part of the United Kingdom's Open University, Finlay provides readers with a summary of the conceptual and practical problems of teaching reflective practice (Finlay, 2008). As with many complex concepts, the teaching and assessment methods must be reasonable and match reality as closely as possible so as not to have students feel more disconnected in the process. Finlay (2008) identified that inauthentic efforts to stimulate reflection could further disengage students and result in their saying just enough to get by or saying what they thought the instructor wanted to hear. In presenting reflective practice models that could be applicable to health care education, several key variables appear with some consistency, including facilitating context, providing a safe atmosphere, providing mentorship and supervision, offering peer support, and allowing time to reflect (Finlay, 2008; Leung & Kember, 2003; Mamede & Schmidt, 2004; Yoo & Chae, 2011).

According to Pretorius and Ford (2016), the ability to reflect on one's own experiences for the purpose of improving professional practice is a crucial characteristic of a successful healthcare practitioner, allowing them to engage in a process of lifelong learning. Studies in which reflective practice has been tested are evident in medical and nursing

literature, and both professions have considered the use of video recordings as a method of self-assessment and faculty assessment (Sorenson & Dieter, 2005; Strand, Fox-Young, Long, & Bogossian, 2013; Webb et al., 2012; Yoo & Chae, 2011). One study of undergraduate nursing students demonstrated that using videos for reflection correlated with improvements in communication skills, long-term memory in the clinic, and student satisfaction (Sorenson & Dieter, 2005; Yoo & Chae, 2012). Studies aimed at improving clinical assessment abilities of nurse practitioners have used video-recordings and support the benefits of this methodology in improving clinical assessment abilities and/or communication skills per student and/or faculty report (Sorenson & Dieter, 2005; Strand et al., 2013; Webb et al., 2012). Medical students who received faculty feedback in the form of voice overlays on video-recorded history-taking and physical examination skills on three occasions improved more than the control group who utilized video recordings but had no faculty assessment (Stone, Angevine, & Sivertson, 1989). Much of the evidence for using video recording appears in higher education literature, in which it is used to train student teachers to be more effective in the classroom (Calandra, Gurvitch, & Lund, 2008; Harford & MacRuairc, 2008; Harford, MacRuairc, & McCartan, 2010; Kong, Shroff, & Hung, 2009).

Exploring the relationship between reflection and levels of learning, Leung and Kember (2003) identified that "deep" levels of learning correlated with reflection and that "surface" learning was linked to non-reflective forms of thinking. Surface learning was associated with habitual action, while deep learning was correlated with understanding, reflection, and critical reflection (Leung & Kember, 2003). Mann et al. (2009) commented on the difficulty of measuring the causal effect of something that is "invisible"; however, studies supporting reflective practice from students' perspectives are promising, even with their limits. Theoretical discussions are in vast supply, yet few actual studies applying this to health care education have been published (Mann et al., 2009). Commentaries about the possible benefits of reflection in practice are to be lauded, but there is little evidence to support these statements (Schutz, 2007). While cursory evidence supports the development of reflective thinking and clinical reasoning, none of the empirical studies captures the complexity of psychomotor mastery. The point is clear: the "easiest" part of healthcare education is delivering knowledge and assessing its acquisition; teaching and assessing the ability to communicate effectively and demonstrate caring and compassion while performing often-complex physical assessments is much more difficult.

While opportunities for developing reflective thinking are readily available in many health professional education programs, opportunities for developing reflective practice abilities are limited. The goal of this project was to explicitly bridge that gap between reflective thinking and reflective practice through the use of two video-recorded practice experiences that emphasize communication and psychomotor skills. The two specific aims of the study were: 1) to implement a controlled method of reflective practice on two occasions in a Doctor of Physical Therapy (DPT) program using peer dyad practice, video-capture, and self- and peer-assessment; and 2) to assess the impact of this reflective practice intervention on enhancing the students' verbal, non-verbal, and psychomotor skills development.

Methods

Participants and Setting

Participants included 36 students (27 female, 9 male, mean age 24) in an accredited DPT program. Study approval was received from the University's Institutional Review Board (IRB). Students provided signed consent. The Department of Physical Therapy served as the setting for this study. In order to simulate the clinical setting, three private treatment areas associated with the Department were selected as locations for the experiences.

Research Design

This study used a quasi-experimental design with collection of quantitative and qualitative data. The investigators were faculty in the program, with the primary investigator serving as the coordinator of the musculoskeletal course in which these experiences were integrated. Using a number generator, the course coordinator randomly assigned the students to a peer dyad prior to each of the two reflective practice experiences. All 18 dyads engaged in the video-recorded reflective practice experience during weeks 5-6 and weeks 9-10 of the 15-week semester. Each member of a dyad was randomly assigned different, discrete musculoskeletal examination and treatment skills to perform on their peer. Prior preparation for cognitive, affective, and psychomotor proficiency of the upper quadrant examination occurred during class time and during independent practice in the weeks preceding each video-recording experience. Skills selected for the first reflective practice experience included assessing cervical mobility using accessory motion, performing cervical special tests, testing cervical muscle length, and performing central/unilateral cervical joint mobilization. Skills for

the second reflective practice experience included performance of shoulder range-of-motion testing, shoulder special tests, shoulder muscle length testing, glenohumeral joint mobilization, and resisted testing of the shoulder.

Students completed the video recordings on Wednesday mornings of the assigned weeks. Immediately prior to the experience, each member of the dyad selected a sealed envelope containing the examination and treatment skills to perform on their partner. Each dyad had up to 1.5 hours to complete the assignment. Students had the opportunity to practice, provide feedback to one another, practice multiple takes, and finally provide one complete video for self- and peer-assessment. The skills to be assessed were required to be recorded in a single take; splicing of the recording was not allowed.

Data Collection

Video-clips were uploaded to a private, course-specific YouTube page. Each dyad had one week to review and comment on their own and their peer's performance. At the completion of the course, students anonymously completed an on-line, investigator-developed *Reflective Practice Questionnaire* (see Appendix). The *Questionnaire* included 13 statements about the perceived value of the assignment and its impact on each of the following: communication, motivation to practice, giving and receiving feedback, anticipated performance on upcoming competencies, stress associated with competencies, and actual psychomotor performance. Responses were collected on a five-point Likert scale (*Strongly Disagree, Disagree, Neutral or No Opinion, Agree,* and *Strongly Agree*). An open-ended question, "Provide at least one example of something you learned about yourself from this experience that will benefit you on your next competency or practical examination or in your clinical internship," completed the questionnaire.

At the conclusion of the course, and after students had completed the *Reflective Practice Questionnaire,* the course coordinator held a class discussion about the experience to gather additional feedback related to the assignment's instructions, process, timing, and relevance to mastery of course content.

Data Analysis

Descriptive statistics from the questionnaire included the mean, median, standard deviation, and range. The qualitative data were analyzed using principles of grounded theory (Glaser & Strauss, 1967) and were assessed to determine themes from the data with subsequent coding of each response (Hesse-Bieber & Leavy, 2006). Two reviewers independently read the

comments and developed a draft coding framework. A subsequent meeting led to identification of major themes. All three reviewers then read the data again, coded the data, and compared and discussed it until consensus was reached. Comments from the end-of-course discussion were documented and considered alongside the program's ongoing curriculum assessment plan.

Results

The first aim, to implement two controlled reflective practice experiences using peer dyad practice, video-recording, and self-and peer-assessment, was accomplished. The process of random selection of students to dyads was readily completed using a number generator. Scheduling of sessions in private treatment areas within the department was managed during non-class hours so that students could complete the assignments in a setting that more closely approximated a patient encounter in a clinical setting. The skills selected for each assessment were deemed appropriate for the study and supported the instruction that occurred during the corresponding musculoskeletal course. The students used suggested instructor-provided prompts to guide their reflection of their own and a peer's performance.

The second aim, to assess the impact of the intervention on developing the reflective practitioners' verbal, non-verbal, and psychomotor skills, included evaluating the quantitative and qualitative responses to the *Reflective Practice Questionnaire.* These data are presented in Table 1. Students positively responded to all 13 statements, indicating that they found value in the experiences. Students most strongly agreed with the following statements regarding improvement: verbal communication = 4.17; the need to practice as a result of seeing the video = 4.06; the ability to give and receive honest, helpful feedback to/from a peer compared to working in a dyad without a video = 4.03 for both; and the improvement in psychomotor skills = 4.03.

Mean scores were further supported by qualitative responses from the final prompt of the on-line questionnaire: "Provide at least one example of something you learned about yourself from this experience that will benefit you on your next competency or practical examination or in your clinical internship." Verbatim responses are provided to illustrate each of the following five themes that emerged: (a) awareness of body mechanics, (b) perceptions of confidence, (c) communication competence, (d) value of the experience, and (e) importance of practice.

Awareness of Body Mechanics:
"Even though I felt like I was using proper body mechanics, I found that this was not always the case when watching myself."
"I noticed my errors in body mechanics."

Table 1
Responses to Reflective Practice Questionnaire (n=36)

Prompt	Min	Max	Mean	SD
I have identified strengths in my nonverbal communication that I had not recognized previously.	2.00	5.00	3.7500	.69179
I have identified areas for improvement in my nonverbal communication that I had not recognized previously.	2.00	5.00	3.7778	.76012
I have identified strengths in my verbal communication that I had not recognized previously.	3.00	5.00	3.9722	.60880
I have identified areas for improvement in my verbal communication that I had not recognized previously.	3.00	5.00	4.1667	.60945
I am more motivated to practice as a result of seeing myself perform on a video.	2.00	5.00	3.5556	.84327
I am more aware of areas that I need to practice as a result of seeing myself perform on a video.	3.00	5.00	4.0556	.67377
I improved my ability to give honest, helpful feedback to a peer compared to working in a dyad without a video.	3.00	5.00	4.0278	.55990
I improved my ability to receive feedback from a peer compared to working in a dyad without a video.	3.00	5.00	4.0278	.60880
The format of this assignment provided an opportunity to develop my ability to work with others.	2.00	5.00	3.8056	.66845
The format of this assignment provided an opportunity for me to improve my psychomotor skills.	3.00	5.00	4.0278	.60880
I would have liked to have used video reflection earlier in the program.	2.00	5.00	3.7222	.88192
Using videos to reflect on my performance would have helped my performance on competencies.	2.00	5.00	3.6944	.74907
Using videos prior to competencies would have decreased my stress level during competencies.	2.00	5.00	3.5833	.90633

Perceptions of Confidence:
"I learned that I do not display confidence in my non-verbals."
"I have learned that I need to increase my eye contact and confidence when speaking to patients."

Communication Competence:
"I learned that it is important to know how to explain what we are doing with our patients in patient-friendly language. I noticed that when I was trying to explain the skills I was performing, it was a challenge to put it into terms they could understand. From here on out I will be more conscious of this to improve my communication with patients while in all clinical internship settings."
"I learned that I need to work more on providing instruction and explanations in patient-friendly language."
"How fast I actually talk."
"I talk a lot. I may need to dial that back a bit, especially if the patient is not appreciating my openness."

Value of the Experience:
"My ability to see and assess my own skills was helpful to give myself criticism and see where I needed to improve."
"Being able to practice on a classmate, get their feedback, and compare it to my perception of my performance, and the evidence from the video, helped me gain a better appreciation for what I do know and helped me feel more confident and better able to perform in the bigger competencies."
"I learned that my verbal and nonverbal skills have improved quite a bit. I always kept thinking that I get very nervous and thus my verbal skills during competency are sub-par but when I watched myself perform these skills, I realized that I felt that the words easily flowed out. I was not hesitant. I looked confident in fact."

Importance of Practice:
"I learned that the more I practice, the better I do."
"I learned that the more I practice the more comfortable I feel with doing the skills."
"I learned what specific skills I needed to focus on practicing."

Student reports from the faculty-led discussions indicated that students agreed that the curriculum provided many instances for their development of reflective thinking, yet few opportunities for their development of structured reflective practice. Students also agreed that the video-recording experiences and subsequent feedback of their own and a peer's performance supported their development of reflective practice. Students identified that they would have benefitted from incorporating these types of non-graded reflective practice opportunities earlier in the curriculum.

Discussion

This series of two non-graded experiences explicitly bridged the gap between reflective thinking and practice. According to Schutz (2007), reflective practice has "the potential to help practitioners… unlock the tacit knowledge and understanding that they have of their practice and use this to generate knowledge for future practice (p. 26)." Future verbal and nonverbal performance, as well as the ability to give and receive feedback, were perceived by the students to be enhanced as a result of this assignment. The assignment was also valuable in assisting students in identifying barriers to their performance not previously recognized. Although this pilot study was carried out within the context of a doctor of physical therapy curriculum, because it involved reflection on the physical performance of hands-on skills, it has applicability to education programs of any discipline that include assessment of skill performance.

This activity was not designed to decrease class hours spent on learning the identified psychomotor skills; however, anecdotally, there was a time savings for faculty as student performance on subsequent competency and practical examinations at the end of the semester was improved compared to prior years without this activity. Less faculty time was required in remediation of student performance and re-takes of the competency or practical examinations. These pilot data were insufficient to draw definitive conclusions as to the long-term positive impact of the intervention; however, the results were so promising that the coordinator chose to make this a permanent assignment within the course. Student feedback supported our assessment about missed opportunities to engage in reflective practice experiences earlier in the curriculum. This pilot was implemented in the second of a two-course musculoskeletal series. Based on these findings in the subsequent year, this activity was added to the first course of the series to enhance students' reflective practice development.

Consideration was also given to the "disconnect" between faculty and student expectations related to reflective practice. For example, the students' primary goal in skills practice preparation for a competency examination may be simply to do well enough to pass, while the faculty members' primary goal of their preparation is for them to learn. After a competency examination, students are routinely asked by faculty, "How do you think you did?" with the hope that the student will successfully demonstrate reflection-ON-action. However, the constructs associated with reflective practice success (a safe environment, mentoring, time for reflection, and peer support) were identified during the end-of-course discussion by faculty and students as often lacking during these performance-based examinations.

Faculty also recognized that faculty-student interactions that followed a competency examination were often rushed and based on a rubric upon which the grade depended and not on the higher-level discussions of performance and decision-making. Faculty's assumptions to date had been that students engaged in reflective practice during class laboratory sessions and continued independent reflective practice prior to a psychomotor competency examination. However, it became clear that students often struggle with the concept of practice and that they demonstrate varying abilities to self-reflect and self-correct their performances. Additionally, students are often unable to reflect at all during the high-stakes, high-stress experience of a graded competency examination.

While students have opportunities to provide feedback of various types throughout the curriculum, they receive limited formal training on how to provide such feedback. A limitation of this study was that without prior training in providing feedback, the type, quality, and effectiveness of feedback varied and had the potential to impact the results of the study.

Future iterations of this research would benefit from formal analysis of student performance on competency and practical examinations, comparing those who completed the reflective practice experience to those who did not. Further, allowing the students to score each other on their reflective practice experience performances and comparing those scores to faculty assessments of the same performances could allow for better evaluation of the quality and consistency of student feedback.

Conclusion

This study provided pilot data on student physical therapists' abilities to engage in and improve their reflective practice through a series of video-assisted, non-graded clinical skill performance experiences. For this study, the authors framed the research questions around Schön's definition of "reflection-ON-action," in which self-assessment of one's performance occurred after the fact as the first logical step in developing a

practitioner who can transition to "reflection-IN-action" (Schön, 1983). Students' development of communication and/or psychomotor skills benefited from the use of video-recordings. Non-graded reflective practice appeared to assist students in the successful translation of classroom skills and reflective thinking to clinical performance using reflective practice. Providing opportunities for students to develop reflective practice skills while in the didactic program will assist them in transitioning from novices in the classroom environment, to effective clinicians and, ultimately, expert practitioners. This intervention has broader application for developing reflective professionals in other healthcare and higher education programs.

References

Braine, M. E. (2009). Exploring new teachers' perception and understanding of reflection: An exploratory study. *Nurse Education in Practice, 9*(4), 262-270. doi: 10.1016/j.nepr.2008.08.008

Burton, A. J. (2000). Reflection: Nursing's practice and education panacea? *Journal of Advanced Nursing, 31*(5), 1009-1017. doi: 10.1046/j.1365-2648.2000.01395.x

Calandra, B., Gurvitch, R., & Lund, J. (2008). An exploratory study of digital video editing as a tool for teacher preparation. *Journal of Technology and Teacher Education, 16*(2), 137-153.

Dewey, J. (1933). *How we think: A restatement of the relation of reflective thinking to the educative process*. Boston, MA: D.C. Heath and Co.

Finlay, L. (2008). Reflecting on reflective practice [Discussion paper]. Retrieved from http://www.open.ac.uk/opencetl/resources/pbpl-resources/finlay-l-2008-reflecting-reflective-practice-pbpl-paper-52/

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research.* London, UK: Transaction Publishers.

Harford, J., & MacRuairc, G. (2008). Engaging student teachers in meaningful reflective practice. *Teaching and Teacher Education, 24*(7), 1884-1892. doi:10.1016/j.tate.2008.02.010

Harford, J., MacRuairc, G., & McCartan, D. (2010). 'Lights, camera, reflection': Using peer video to promote reflective dialogue among student teachers. *Teacher Development, 14*(1), 57-68. doi:10.1080/13664531003696592

Hesse-Bieber, S. N., & Leavy, P. (2006). *The practice of qualitative research.* London, UK: Sage.

Johns, C. (2009). *Becoming a reflective practitoner* (3rd ed.). Oxford, UK: Wiley-Blackwell.

Kofoed, N. A. (2011). Reflective practice for personal and professional transformation. *Journal of Christian Nursing, 28*(3), 132-138. doi: 10.1097/CNJ.0b013e31821cbb92

Kong, S. C., Shroff, R. H., & Hung, H. K. (2009). A web enabled video system for self reflection by student teachers using a guiding framework. *Australasian Journal of Educational Technology, 25*(4), 544-558. doi:10.14742/ajet.1128

Leung, D., & Kember, D. (2003). The relationship between approaches to learning and reflection upon practice. *Educational Psychology*, *23*(1), 61-71. doi:10.1080/01443410303221

McCarthy, J., Cassidy, I., & Tuohy, D. (2013). Lecturers' experiences of facilitating guided group reflection with pre-registration BSc nursing students. *Nurse Education Today, 33*(1), 36-40. doi:10.1016/j.nedt.2011.10.020

Mamede, S., & Schmidt, H. (2004). The structure of reflective practice in medicine. *Medical Education*, *38*(12), 1302–1308.

Mann, K., Gordon, J., & MacLeod, A. (2009). Reflection and reflective practice in health professions education: A systematic review. *Advances in Health Sciences Education: Theory and Practice*, *14*(4), 595-621. doi:10.1007/s10459-007-9090-2

Pretorius, L., & Ford, A. (2016). Reflection for learning: Teaching reflective practice at the beginning of university study. *International Journal of Teaching and Learning in Higher Education, 28*(2)*, 241-253.*

Shepard, K., & Jenson, G. (1994). *Handbook of teaching for physical therapists* (2nd ed.). Boston, MA: Butterworth-Heinemann.

Schön, D. (1983). *The reflective practitioner: How professionals think in action*. New York, NY: Basic Books.

Schön, D. (1987). *Educating the Reflective Practitioner*. San Francisco, CA: Jossey-Bass.

Schutz, S. (2007). Reflection and reflective practice. *Community Practitioner*, *80*(9), 26-29.

Sobral, D. (2000). An appraisal of medical students' reflection-in-learning. *Medical Education, 34*(3), 182-187.

Sorenson, D. S., & Dieter, C. (2005). From beginning to end: Video-based introductory, instructional, and evaluation applications. *Nurse Educator, 30*(1), 40-43.

Stone, H., Angevine, M., & Sivertson, S. (1989). A model for evaluating the history taking and physical examination skills of medical students. *Medical Teacher, 11*(1), 75-80.

Strand, H., Fox-Young, S., Long, P., & Bogossian, F. (2013). A pilot project in distance education: Nurse practitioner students' experience of personal video capture technology as an assessment method of clinical skills. *Nurse Education Today*, *33*(3), 253-257. doi:10.1016/j.nedt.2011.11.014

Webb, E. A., Davis, L., Muir, G., Lissauer, T., Nanduri, V., & Newell, S.J. (2012). Improving postgraduate clinical assessment tools: The introduction of video recording to assess decision making. *Medical Teacher*, *34*(5), 404-410. doi:10.3109/0142159X.2012.668242

Yoo, M. S., & Chae, S. M. (2011). Effects of peer review on communication skills and learning motivation among nursing students. *Journal of Nursing Education, 50*(4), 230-233. doi:10.3928/01484834-20110131-03

_____

JEFFREY G. EBERT, PT, DPT, OCS, is a clinical assistant professor in the Department of Physical Therapy at Mercer University, in Atlanta, GA. He has more than 13 years of experience in higher education. His research areas of interest include the scholarship of teaching and learning. He has published on this topic and has presented his research at state and national conferences. He currently teaches courses in orthopedics and movement science.

JEANNETTE R. ANDERSON, PT, DHS, is the Chair of the Department of Physical Therapy at Mercer University in Atlanta, GA. She has over 15 years of experience in public and private higher education institutions. She has published on topics related to the scholarship of teaching and learning and presented at national and international conferences. She currently teaches content on professionalism in physical therapy and leadership development.

LESLIE F. TAYLOR, PT, PhD, MS, is a professor in the Department of Physical Therapy and Associate Dean of the College of Health Professions at Mercer University in Atlanta, GA. She has over 26 years of experience in higher education. She has published and presented on topics involving physical function in older adults as well as the scholarship of teaching and learning. Her current teaching responsibilities include psychosocial aspects of illness and disabilities, professional leadership, and research methods and application.

Acknowledgements

Appendix

At the completion of the course, students anonymously completed an on-line, investigator-developed *Reflective Practice Questionnaire*.

Please rate how much you agree with the following statements.
(Scale of 1-5: 1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree)
Assessing my performance in the video:
1. I have identified strengths in my nonverbal communication that I had not recognized previously.
2. I have identified areas for improvement in my nonverbal communication that I had not recognized previously.
3. I have identified strengths in my verbal communication that I had not recognized previously.
4. I have identified areas for improvement in my verbal communication that I had not recognized previously.
5. I am more motivated to practice as a result of seeing myself perform on a video.
6. I am more aware of areas that I need to practice as a result of seeing myself perform on a video.

Working with a peer on this video-recording assignment:
1. I improved my ability to give honest, helpful feedback to a peer compared to working in a pair without a video.
2. I improved my ability to receive feedback from a peer compared to working in a pair without a video.
3. The format of this assignment provided an opportunity to develop my ability to work with others.
4. The format of this assignment provided an opportunity for me to improve my psychomotor (hands-on) skills.

Thinking back on your PT education:
1. I would have liked to have used video reflection earlier in the program.
2. Using videos to reflect on my performance would have helped my performance on prior competencies.
3. Using videos prior to competencies would have decreased my stress level during competencies.

Open-ended:
1. Provide at least one example of something you learned about yourself from this experience (positive or negative) that will benefit you on your next competency, practical exam, and/or clinical internship.

Using a Community of Practice in Higher Education: Understanding the Demographics of Participation and Impact on Teaching

Alex Wilson and Chris Wilson
Loughborough University

Gabi Witthaus
University of Birmingham

Research in the higher education literature argues that communities of practice (CoPs) can be effective staff development by helping academics to share teaching experiences and innovations. One of the key proposed benefits of CoPs involves the opportunity for early career practitioners to learn from more experienced colleagues. This raises the question as to whether the benefits of a CoP differ across academics according to their teaching experience, seniority, or other demographic features. After establishing a CoP within a highly ranked UK business school, this paper provides a statistical analysis of its ability to engage and influence different academics. As consistent with our hypothesis, the main findings show that that: 1) junior staff were significantly more likely to participate in the CoP than senior staff, and 2) conditional on participation, junior participants were also more likely to engage with the CoP by transferring an idea they had learned into their teaching practice.

Enhancing teaching standards is becoming ever more important in higher education. This is especially relevant in the UK following several recent policy changes that aim to encourage competition among degree providers and raise teaching quality. Indeed, Botham (2018) observes that higher education in the UK is "increasingly focused on teaching and learning practice." This is in response to factors such as the government-led audit of teaching quality under the Teaching Excellence Framework (TEF) (BIS, 2016) and closer scrutiny of formal teaching qualifications held by staff. At the same time, pressure on academics is also increasing in other areas such as research and funding, and so the time available to develop and disseminate good teaching practice is limited. Indeed, with their emphasis on research and dissemination, academic workload models often constrain the participation of academics in professional development activities related to teaching (Hemer, 2014; Soliman and Soliman, 1997), suggesting that informally organized community-based initiatives may have an important role in supporting academics in their teaching practice.

In response, "Communities of Practice" (CoPs) are becoming an increasingly popular framework to enable staff development in higher education (Tight, 2015). More widely, CoPs have been used in many organizational and professional settings to enable learning through discussion of common concerns and interests in fulfillment of both individual and group goals (Lave & Wenger, 1991; Wenger, McDermott, & Snyder, 2002). In higher education in particular, they provide informal opportunities and defined spaces to allow academics to share experiences and disseminate innovative teaching practices (Lindkvist, 2005; Roberts, 2006). Accordingly, CoPs should not be conflated with continued professional development (CPD) initiatives whereby formal training is provided by the institution and often aligned directly with the UK's Professional Standards Framework and staff gain a recognized teaching qualification (Botham, 2018).

One of the key proposed benefits of CoPs is the opportunity for early-career academics to learn from more experienced colleagues through "legitimate peripheral participation" (Lave & Wenger, 1991). However, as junior staff often have a higher level of teaching-related training, an opposite learning direction could also be possible with more junior staff updating the skills of more experienced senior staff. This raises the question of how the benefits of a CoP differ across academics according to their level of teaching experience and seniority, or indeed any other demographic characteristics. Evidence on this issue remains scarce.

This paper begins to address this gap by reporting the findings from a study conducted within a leading UK business school. Instead of the more common approach of critiquing the literature from a particular viewpoint, our paper aims to take a complementary scientific approach by testing a hypothesis from the literature using observed data. In particular, the paper uses statistical methods to establish quantitative evidence about the mechanisms under which participation in a CoP and the impact of a CoP on teaching practice vary with seniority and other demographic characteristics of different academics. The use of a quantitative analysis is unusual within the literature. However, one should view it as a complement to the more common descriptive, critical, or qualitative approaches. Indeed, as detailed in the next section, Wenger-Trayner and Wenger-Trayner (2015) argue that CoPs can, and should, be measured quantitatively to complement the extensive body of qualitative work in this arena.

Theoretical Background and Hypotheses

Originally, the term "community of practice" was coined by Lave and Wenger (1991) to describe situations where learning is informal, fragmented, serendipitous, and situated in a set of social

relationships and shared activities, such as brief chats around the photocopier. Members of CoPs participate voluntarily, are not assessed on their learning, and may alternate between playing the role of teacher and learner. According to Wenger (1998, pp.72-73), a CoP is characterized by three interrelated elements: 1) an identity defined by a shared domain of interest; 2) members engaging in joint activities or discussions; and 3) members developing a shared repertoire of practice and artefacts to address recurring problems.

In Omidvar and Kislov (2014), Wenger-Trayner explains that CoPs have evolved through three distinct phases. In Phase 1, learning was seen as a social, rather than individual, cognitive activity (Lave & Wenger, 1991; Wenger, 1998; Wenger, 2000), and CoPs were described as being formed spontaneously. In Phase 2, scholars began to think of CoPs as communities of potential instruments or tools for knowledge sharing within organizations (Wenger, 2010; Wenger-Trayner & Wenger-Trayner, 2015). A key shift in this phase was the move towards deliberately setting up CoPs with the aim of improving the management and sharing of knowledge within organizations. This notion is not uncontentious – Arthur (2016), for example, cautions against what he calls "a certain commercial instrumentalism" in Wenger et al.'s (2002) suggestion that "CoPs could be managed and cultivated by companies to achieve organisational goals." Phase 3 explored the ways in which individuals participate in a "landscape of practice" across multiple CoPs (Wenger-Trayner, Fenton-O'Creevy, Hutchinson, Kubiak, & Wenger-Trayner, 2014). While these phases follow a chronological progression, CoP initiatives continue to be investigated within all three conceptual frameworks.

The key mechanism by which newcomers to a CoP learn is via "legitimate peripheral participation" (Lave & Wenger, 1991). This is a direct critique of traditional learning theories whereby the learner is conceptualized "as a receptacle of (taught) knowledge" and where learning is a set of discrete cognitive processes detached from the learner's own "lived-in world" (Fuller, Hodkinson, Hodkinson, & Unwin, 2005, p. 50). By positioning learning as part of social practice (and learning as generative of new social practices), participation in communities of practice involves learning (Fuller et al., 2005). Within higher education, this would involve early-career academics learning from their more experienced colleagues. Indeed:

> Legitimate peripheral participation provides a way to speak about the relations between newcomers and old-timers, and about activities, identities, artefacts, and communities of knowledge and practice. It concerns the process by which newcomers become part of a community of practice (Lave & Wenger, 1991, p. 29).

Within higher education, Sánchez-Cardona, Sánchez-Lugo, & Vélez-González (2012) consider CoPs to be an alternative to traditional training or professional development programs and suggest that they typically fit within Phase 2 of the CoP taxonomy where CoPs can be deliberately established and managed. Among other benefits, CoPs in higher education are seen to stimulate dialogue among faculty (e.g., Herbers, Antelo, Ettling, & Buck, 2011; Lindkvist, 2005; MacKenzie et al., 2010; Nixon & Brown, 2013; Roberts, 2006), to promote self-knowledge and reflective practice (Golden, 2016), to enhance disciplinary teaching (Jones, 2010; Pharo, Davison, McGregor, Warr, & Brown, 2014), to shape notions of participatory value through collegiality (Ryan, 2015), and to provide a safe, non-competitive, collaborative, and encouraging space within which individuals can improve their teaching practices (McDonald, Collins, Hingst, & Lynch, 2008; Ward & Selvester, 2012). Ng and Pemberton (2013) also argue that CoPs in higher education can work with academic networks and cross-cut formal structures and improve collegiality.

The learning mechanism of legitimate peripheral participation would predict that less experienced newcomers become part of a CoP through exposure to activities, identities, artefacts, knowledge, and social practice of more experienced old-timers (Lave & Wenger, 1991). However, alternative mechanisms could also be at play. First, as argued by Arthur (2016), junior academics start their careers highly qualified and knowledgeable, and so may have less to learn from their more senior colleagues. Second, early-career academics often have a higher level of teaching-related training, and so the direction of learning may be reversed, with more junior staff updating the skills of more senior staff. Hence, to further explore which mechanism is dominant, we state the following hypothesis:

Hypothesis 1: Relative to more senior academics, more junior academics are more likely to a) participate in a CoP, and b) adapt their teaching practice after participating in a CoP.

The existing evidence on this issue is scant. While the benefits of CoPs are widely documented, as noted earlier, little is known about how the effects of CoPs vary across different types of academics. Cox (2013) reports on CoPs in the USA aimed specifically at early-career academics, which are referred to as Faculty Learning Communities (FLCs). He finds that these are particularly helpful to academics, while noting that many of the FLCs involved a high degree of traditional training or mentoring elements, where "old-timers" were specifically enlisted to support "newcomers". However, unlike our paper, the results did not analyze how participation and the effects of the community varied between the old-timers and newcomers. Indeed,

Arthur (2016) acknowledges the need for studies to better capture individuals and their development as opposed to focusing on the community as a whole or a limited subsection of the community, such as early-career academics (Cox, 2013). To begin to address that gap, the remainder of the paper provides a quantitative analysis of how the benefits of a CoP vary across different types of academics at a UK business school.

Implementing the CoP

The CoP was established in early 2015 within a business school in the UK with over 140 academic staff and 3,500 students and that offers a full service of undergraduate, postgraduate and MBA programmes. The business school is highly ranked for both teaching and research and is triple-accredited by the three global accreditation bodies.

The CoP aimed to provide an opportunity for academics to share their experiences, challenges, and innovative teaching practices so that staff could diffuse best practice within the school and offer each other mutual support. The CoP was called the "Teaching Forum" and took the form of a series of lunchtime workshops, to which all academic and academic-related staff within the School were invited.

Each CoP event involved a buffet lunch followed by a series of short presentations by selected staff members about their experiences with different teaching innovations. Such staff were selected based on high teaching scores and/or their innovative practice. After each presentation, participants were engaged in an open discussion. Following each event, the associated online resources were shared via a dedicated page on the institutional Virtual Learning Environment. These included video recordings, audio podcasts, and presentation slides, as well as an online discussion board to enable further interaction regarding the topic.

This format is consistent with the definition of Phase 2 in the evolution of CoPs (Omidvar and Kislov, 2014) with a combination of structure and informal elements.

In terms of the threefold elements that define a CoP (Wenger, 1998), staff who participated in the CoP 1) had a common identity as academics, defined by their shared domain of interest in the scholarship of learning and teaching; 2) engaged in joint activities and discussions via the workshops; and 3) built up a shared repertoire of practice, which was embodied in the resources (or "artifacts") arising out of each workshop that were shared via the Virtual Learning Environment. Crucially, the CoP can be differentiated from formalized continuous professional development events (e.g., Botham, 2018) as it was initiated by three members of the staff to meet the specific need for sharing good teaching practices, which encompasses showcasing new learning technologies as well as innovative teaching and learning methods, and providing mutual support from colleagues in the school. It was publicized to staff as run by colleagues and was not a formal training event. Participation was entirely voluntary and had no impetus from university or department management.

Methodology

Surveys

Our study focuses on the first three CoP events. To assess how the CoP affected different staff members, the study conducted three different surveys:

1) Exit survey: After each CoP event, any new (offline and/or online) participants were identified and surveyed to find out about their experiences and views. This survey was completed voluntarily by 89% of all participants.[1]

2) Impact survey: Two months after the third event, all staff members who had participated (offline and/or online) were surveyed for a second time. Using a series of self-reported measures, this survey aimed to ascertain a) the participants' views on the relevance of the CoP and b) how the CoP had impacted on their teaching practice. This survey was completed voluntarily by 51% of all participants.[2]

3) Non-participant survey: All staff members who had not participated either face-to-face or online in the CoP were surveyed to assess their perceptions of the initiative and to ascertain their reasons for non-participation. This survey was completed voluntarily by 19% of all non-participants.

The impact survey and the non-participant survey were both conducted online with £50 voucher prize draws as incentives.

To supplement the survey data, some non-confidential, publicly accessible demographic information about each of the 142 academic and teaching-related staff members within the School was collated. The variables and descriptive data are summarized in Table 1 (all tables are presented in the appendix). In terms of rank, a total of 37% of staff are lecturers (equivalent to assistant professors), 25% of staff are senior lecturers or readers (equivalent to associate professors), 27% of staff are full professors, and 11% of staff have some other rank. Eight percent of staff (mostly lecturers) are on probation in the sense of being non-tenured.

---

[1] Access data of the online resources was collected via the online learning platform's reporting facilities with consent of the users.

[2] Objective measures of the impact on teaching practice were difficult to obtain for this initial quantitative study. More expansive studies that are able to document both self-reported and objective measures would be very useful in future research.

In what follows, we define "junior" staff as those ranked as lecturers or senior lecturers, and "senior" staff as readers or full professors. The determination of rank within the university is based upon success in both research (evaluated through publication in academic journals and books) and teaching (indicated by student module evaluations, peer- and formal-observation, staff awards, and in some cases, a teaching portfolio).

Some further observations from Table 1 also include the following. Sixty-two percent of staff are male. Staff differ in their contracted duties: Eighty-four percent have teaching and research contracts, 13% have teaching-only contracts, and 3% have research-only contracts. Eighty-four percent of staff work full-time, and on average, each staff member has been working at the School for over seven years. By using a public website, one can ascertain that 39% of the staff members were submitted to the UK's most recent Research Excellence Framework, indicating a greater research focus for these individuals. Finally, each academic staff member falls into one of seven discipline groups spanning business and economics.

Analysis

This section contains our analysis of participation, perceptions, and impact.

Participation. The study first analyzed the level of participation, the way participation was spread across the face-to-face and online formats of the CoP, and the variation of participation across different types of academics. One third of the School participated in the CoP by attending at least one session and/or accessing the online resources.[3] This seems a reasonable participation rate for a new initiative, and this rate is expected to grow as the CoP continues. Among those who participated, the face-to-face workshops were substantially more popular than the online resources. Sixty-eight percent of the CoP participants did not utilize the online resources. Out of the 32% of participants that did, 15% also participated in the face-to-face workshops, while 17% used the online resources only. The presentation slides and discussion boards were the most used online resources, having been accessed by 49% and 37% of online users respectively. The video and audio recordings were accessed by only 11% and 3% of online users respectively. Most CoPs in the higher education literature focus on using face-to-face gatherings. The few examples that use online platforms reveal some benefits such as flexibility and efficiency, e.g. Golden (2016), but also significant challenges, as consistent with our results, including difficulties with technology, high set up costs, user confidentiality, and lack of time (e.g., Houghton, Ruutz, Green, and Hibbins, 2014).

To address the question of how participation varied across different types of academics, the paper first provides a descriptive analysis before considering a more formal multivariate investigation. Table 2 shows how participation rates varied across the demographic variables. After applying some relevant statistical tests to compare the participation rates, one can find the following descriptive results[4]. The first and most striking result concerns the effect of rank - junior staff (lecturers and senior lecturers) were far more likely to participate than senior staff (readers and full professors). As consistent with Hypothesis 1a, this finding is highly statistically significant and very robust: 47% of all lecturers and senior lecturers in the School participated, while only 7% of all readers and professors participated. Second, staff that were entered into the last Research Excellence Framework were significantly less likely to participate. This indicates that staff who are more active and successful in research are less likely to participate in a teaching-focused CoP. Third, a weaker effect suggests that part-time staff were also less likely to participate. Finally, there were no significant differences in the participation rates across the remaining demographic variables, including gender, years completed within the School, job duties, or by probationary status.

These findings are confirmed and extended using a more sophisticated multivariate probit analysis in Table 3, which controls for the effects of all demographic variables simultaneously.[5] Again, as consistent with Hypothesis 1a, an individual's rank is confirmed to be the most powerful determinant of participation with more junior staff being far more likely to participate. The results also confirm the effects of past Research Excellence Framework entry and part-time staff. However, compared to the less sophisticated descriptive analysis, the new results now suggest that, separate from the effects of rank, staff that have completed a higher number of years' employment within the School are also slightly less likely to participate.

Perceptions. Overall, participants viewed the CoP very positively. These views can be documented from

---

[3] The statistics in this paragraph are not presented in tabular form to save space; available on request.

[4] Table 3 reports the results of a batch of two-sided non-parametric Fisher Exact tests that are valid for small samples. One can provide very similar results using some related z-tests under a parametric normal assumption. See the technical notes alongside Table 3 for more details.

[5] This methodology estimates the effect of each demographic variable on the probability of an individual participating. In contrast to the previous descriptive tests, it provides a more rigorous analysis by simultaneously controlling for the effects of all the other demographic variables. See the technical notes alongside Table 3 for more details.

the responses to the exit survey (soon after initial participation), and some parts of the impact survey (two months after the third session). The relevant results from the exit survey are summarized in Table 4. For instance, 86% stated that they were "likely" or "very likely" to participate again in the future, and 81% stated that they would encourage another colleague to attend. (The final row of Table 4 is discussed later in the next section.)

One part of the impact survey asked participants for their views on what was most relevant within the CoP. The results are presented in Table 5. Respondents thought that the CoP was most relevant for: 1) providing them with a different learning opportunity (75% stated that the CoP was "relevant" or "very relevant" for this purpose), 2) encouraging them to try new ideas (71%), 3) improving their confidence (71%), 3) providing them with motivation to enhance their teaching (71%), and 5) helping them to balance teaching with other commitments (67%). These reasons are in keeping with the main findings from the literature, as reports of such benefits are typical.

Impact. This section further analyzes the impact survey to determine the extent to which the CoP affected individuals' teaching practice. To recall, Hypothesis 1b suggests that junior academics are more likely to adapt their teaching practice after participating in a CoP. The paper now ascertains the level of impact, the type of impact, and the reported impact variation across different types of academics.

From the exit survey, the bottom row of Table 4 has already indicated that 66% of participants were likely to use something they had learned from the CoP. To follow this up two months after the third event, the impact survey further asked participants about how exactly the CoP had impacted upon their teaching practice. At this point, 71% of respondents agreed that the CoP had led to them to think differently about their teaching practice. Moreover, 42% of respondents confirmed that they had already used some material and/or ideas from the CoP to support their teaching. For the purpose of the paper, these latter cases, where individuals have used something they have learned from the CoP to support their teaching, are now defined as a form of self-reported "impact."

As summarized in Table 6, the most popular forms of such impact included using something they have learned from the CoP: to rethink teaching approaches (29%), to update teaching skills (25%), and to help design new material (25%). The most common reason given for why individuals had not yet used something they had learned from the CoP within their teaching practice was the lack of time and opportunity. Once again, this points to high academic workloads as being the main barrier to participation and engagement in teaching development.

The study next analyzed how the reported levels of impact vary across different types of academics. As the impact survey provides us with a relatively small sample, attention is focused on a descriptive analysis. After applying some relevant statistical tests to compare the reported rates of impact across different demographic groups[6], Table 7 presents the following results. First, the results provide a further clear indication of the role played by individuals' rank. In particular, as consistent with Hypothesis 1b, conditional on participation, lecturers were significantly more likely to report an impact than senior lecturers were.

Hence, when combined with our previous finding on participation, these results are consistent with both of our Hypotheses 1a and 1b. In line with "legitimate peripheral participation," 1) lecturers and senior lecturers are more likely than senior staff to participate, and conditional on participation, 2) lecturers are more likely than senior lecturers to use something they had learned from participating. However, as discussed in the next section, the lack of senior staff participation is of a concern for the full effectiveness of the CoP and for the development of the junior staff.

In other results from Table 7, individuals were also more likely to report an impact if they were on a teaching and scholarship contract (as opposed to those employed on a research and teaching contract) or if they were not submitted as a researcher to the last Research Excellence Framework. Intuitively, this is consistent with the idea that staff with fewer research obligations are more likely to try out teaching-related ideas that they have learned from the CoP. Overall, while one must be careful about generalization due to the small sample size, these findings suggest that the impact of a CoP on academics' teaching practice may vary strongly among different types of staff members.

Conclusion

This paper has provided an original investigation into the benefits of a CoP within a highly ranked UK business school. To complement existing descriptive and critical approaches, the paper has taken a more unusual scientific approach. In particular, by using statistical methods, it has established quantitative evidence about the mechanisms under which participation in a CoP and the impact of a CoP on teaching practice vary with faculty seniority and other demographic characteristics.

At an aggregate level, the benefits of the CoP were clear, and participants' perceptions of the CoP were

---

[6] As in the previous analysis, these involve two-sided non-parametric Fisher Exact tests that are valid for small samples.

very positive. As consistent with the existing literature, the participants generally thought that the CoP provided them with a different learning opportunity, a source of improved confidence and motivation, and an opportunity to think differently about their teaching and to apply new ideas to their practice (e.g., Herbers, et al., 2011; Lindkvist, 2005; MacKenzie et al., 2010; Nixon & Brown, 2013; Roberts, 2006).

More substantially, the main results showed how these benefits differed across different types of academics. First, the study found that participation in the CoP varied widely across some academic characteristics. Most notably, junior staff were far more statistically likely to participate than senior staff. Participation was also lower for staff with 1) a longer employment history within the School, 2) greater research obligations, and 3) part-time contracts. Second, the results showed that, conditional on participation, more junior academics and academics with fewer research obligations were also more likely to apply something they had learned to their teaching practice. Lave and Wenger's (1991) work has been criticized for its attempt to explain all of workplace learning through "legitimate peripheral participation" by Fuller et al. (2005). However, from their own research they observe that it explains situations with new members joining a CoP, specifically junior members and experienced workers changing jobs. Hence, as consistent with the concept of "legitimate peripheral participation," staff of more junior rank were more likely to both participate in the CoP and apply what they had learned in the CoP. Other demographic variables, such as gender and academic discipline area, had no significant effect on the documented measures of participation or engagement.

These findings generate a number of implications and future research questions. The finding that senior academics may be relatively far less likely to participate and engage in CoPs suggests that CoPs in higher education may struggle to fulfill their potential. This raises the question of why more senior staff exhibited lower rates of participation and engagement. Some possible explanations include the possibilities that senior staff 1) have less to gain from participating due to their higher levels of experience, or that senior staff would gain from participating, but 2) have less free time, and 3) underestimate the value of doing so. However, our survey results from non-participants suggest that the increased workload of senior academic staff serves as the major barrier, as consistent with explanation 2. Indeed, while some respondents commented that the CoP did not look helpful for them (17%), most respondents said they were too busy (56%) and/or had other commitments (44%). This is in line with findings which show how academic workload models allow insufficient time for engagement in activities aimed at enhancing teaching practice (e.g. Hemer, 2014; Soliman & Soliman, 1997).

Hence, future research should be targeted to help understand how to better attract a broader range of staff into CoPs, including those of higher rank. This remains a key question to improve the effectiveness of CoPs and teaching practice in higher education.

References

Arthur, L. (2016). Communities of practice in higher education: Professional learning in an academic career. *International Journal for Academic Development*, *21*(16), 1–12.

BIS. (2016). *Teaching excellence framework: Year two and beyond*. Retrieved from https://www.gov.uk/government/consultations/teaching-excellence-framework-year-2-technical-consultation

Botham, K. A. (2018). The perceived impact on academics' teaching practice of engaging with a higher education institution's CPD scheme. *Innovations in Education and Teaching International*, *55*(2), 164-175.

Cox, M. D. (2013). The impact of communities of practice in support of early-career academics. *International Journal for Academic Development*, *18*(1), 18–30.

Fuller, A., Hodkinson, H., Hodkinson, P., & Unwin, L. (2005). Learning as peripheral participation in communities of practice: A reassessment of key concepts in workplace learning. *British Educational Research Journal*, *31*(1), 49-68.

Golden, J. E., (2016). Supporting online faculty through communities of practice: Finding the faculty voice. *Innovations in Education and Teaching International*, *53*(1), 84–93.

Hemer, S. R. (2014). Finding time for quality teaching: An ethnographic study of academic workloads in the social sciences and their impact on teaching practices. *Higher Education Research & Development*, *33*(3), 483–495.

Herbers, M. S., Antelo, A., Ettling, D., & Buck, M. A. (2011). Improving teaching through a community of practice. *Journal of Transformative Education*, *9*(2), 89–108.

Houghton, L., Ruutz, A., Green, W., & Hibbins, R. (2014). I just do not have time for new ideas: Resistance, resonance and micro-mobilisation in a teaching community of practice. *Higher Education Research & Development*, *34*(3), 527–540.

Jones, J., (2010). Building pedagogic excellence: Learning and teaching fellowships within communities of practice at the University of Brighton. *Innovations in Education and Teaching International*, *47*(3), 271–282.

Lave J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation (Learning in doing: Social, cognitive and computational perspectives)*. Cambridge, UK: Cambridge University Press.

Lindkvist, L. (2005). Knowledge communities and knowledge collectivities: A typology of knowledge work in groups. *Journal of Management Studies, 42*(6), 1189-1210.

MacKenzie, J., Bell, S., Bohan, J., Brown, A., Burke, J., Cogdell, B., Jamieson, S., McAdam, J., McKerlie, R., Morrow, L., Paschke, B., Rea, P., & Tierney, A. (2010). From anxiety to empowerment: A learning community of university teachers. *Teaching in Higher Education, 15*(3), 273-284.

McDonald, J. Collins, P., Hingst, R. D., & Lynch, B. (2008). Community learning: Members' stories about their academic community of practice. *Engaging Communities; 31st HERDSA Annual Conference.* Retrieved from https://eprints.usq.edu.au/4220/1/McDonald_Collins_Hingst_Kimmins_Lynch_Star_HERDSA2008_PV.pdf

Ng, L. L., & Pemberton, J. (2013). Research-based communities of practice in UK higher education. *Studies in Higher Education, 38*, 1522–1539.

Nixon, S., & Brown, S. (2013). A community of practice in action: SEDA as a learning community for educational developers in higher education. *Innovations in Education and Teaching International, 50*(4), 357–365.

Omidvar, O., & Kislov, R. (2014). The evolution of the communities of practice approach. *Journal of Management Inquiry, 23*(3), 266–275.

Pharo, E. Davison, A., McGregor, H., Warr, K., & Brown, P. (2014). Using communities of practice to enhance interdisciplinary teaching: Lessons from four Australian institutions. *Higher Education Research and Development, 33*(2), 341–354.

Roberts, J. (2006). Limits to communities of practice. *Journal of Management Studies, 43*(3), 623-639.

Ryan, J. (2015). It ain't just what you do and the way that you do it: Why Discourse matters in higher education communities of practice. *Higher Education Research & Development, 34*(5), 1001-1013.

Sánchez-Cardona, I., Sánchez-Lugo, J., & Vélez-González, J. (2012). Exploring the potential of communities of practice for learning and collaboration in a higher education context. *Procedia - Social and Behavioral Sciences, 46*, 1820–1825.

Soliman, I., & Soliman, H. (1997). Academic Workload and quality. *Assessment & Evaluation in Higher Education, 22*(2), 135-157.

Tight, M. (2015). Theory application in higher education research: The case of communities of practice. *European Journal of Higher Education, 8235* (December), 37–41.

Ward, H. C., & Selvester, P. M. (2012). Faculty learning communities: Improving teaching in higher education. *Educational Studies, 38*(1), 111–121.

Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity.* Cambridge, UK: Cambridge University Press.

Wenger, E. (2000). Communities of practice and social learning systems. *Organization, 7*(2), 225–246.

Wenger, E. (2010). Communities of practice and social learning systems: The career of a concept. In C. Blackmore (Ed.), *Social learning systems and communities of practice* (pp. 179-198). Milton Keynes, UK: Open University and Springer.

Wenger, E., McDermott, R. A., & Snyder, W. (2002). *Cultivating communities of practice: A guide to managing knowledge.* Boston, MA: Harvard Business Press.

Wenger-Trayner, E., Fenton-O'Creevy, M., Hutchinson, S., Kubiak, C., & Wenger-Trayner, B. (2014). *Learning in landscapes of practice: Boundaries, identity, and knowledgeability in practice-based learning.* Abingdon & New York, NY: Routledge.

Wenger-Trayner, E., & Wenger-Trayner, B. (2015) *Introduction to communities of practice.* Retrieved from http://wenger-trayner.com/introduction-to-communities-of-practice/

ALEX WILSON is Senior Lecturer in Strategy at the School of Business and Economics at Loughborough University where he teaches Strategic Management. He has won an award as Early Career Teacher of the Year. He has served as the Chartered Association of Business Schools (UK) Research Fellow in both 2017 and 2018. He has been a visiting researcher at SMU (Singapore). His research examines the strategic development of management education globally.

CHRIS WILSON is a Senior Lecturer in economics within the School of Business and Economics at Loughborough University, UK. Chris has extensive experience as a Program Director for the School's undergraduate economics degrees, and he has recently served as Co-Director of Undergraduate Studies. He has won a number of awards for his teaching. Chris researches and teaches in the area of microeconomics and game theory.

GABI WITTHAUS is a learning design consultant at the University of Birmingham, where her role is to support academics in module and program design. She previously worked as a research associate in open and distance learning at the University of Leicester, where she was also a tutor and e-moderator on the Online Master's in the Applied Linguistics and TESOL program. Gabi is currently also working towards her PhD in Higher Education, Evaluation, and Enhancement through Lancaster University. Her research focus is on widening participation in higher education through online and open learning. Gabi blogs at ArtofElearning.org. On Twitter she is @twitthaus

Appendix

Table 1
Summary of Demographic Data (for all 142 Staff Members)

Variable	Description	Average	Number	Min	Max
Male	Staff member is male	0.62	88	0	1
Lecturer	Staff member is a lecturer	0.37	53	0	1
SL	Staff member is a senior lecturer	0.20	29	0	1
Reader	Staff member is a reader	0.05	7	0	1
Prof	Staff member is a professor	0.27	38	0	1
ReadProf	Staff member is either a reader or professor	0.32	45	0	1
OtherRank	Staff member has another rank	0.11	15	0	1
R+T	Research and teaching contract	0.85	120	0	1
T+S	Teaching and scholarship contract	0.13	18	0	1
R Only	Research only contract	0.03	4	0	1
Years	Number of completed years as staff at School	7.64	-	0	29
PT	Staff member is part-time	0.14	20	0	1
Probation	Staff member is on probation	0.08	11	0	1
REF	Staff member was entered in last REF	0.39	56	0	1
AFM	Member of Accounting + Financial Management	0.14	20	0	1
EC	Member of Economics	0.18	25	0	1
IBSI	Member of International Business, Strategy	0.13	19	0	1
IM	Member of Information Management	0.15	22	0	1
HRMOB	Member of Human Resource Mgt and Organisational Behaviour	0.11	16	0	1
MSOM	Member of Management Science and Operational Management	0.13	19	0	1
RM	Member of Retail and Marketing	0.12	17	0	1
OtherGroup	Member of another group	0.03	4	0	1

Table 2
Participation Rates Across Demographic Variables

	Total	% Participated		Total	% Participated
All	142	33.1	R+T	120	31.7
Male	88	28.4	T+S	18	50.0
Female	54	40.7	R Only	4	0.0
Lecturer	53	47.2	PT	20	15.0*
SL	29	44.8	FT	122	36.1
ReadProf	45	6.7****	Probation	11	63.6
OtherRank	17	35.3	Non-Prob	131	35.9
Years <5	73	35.6	REF	56	21.4**
Years 5-10	25	40.0	Non-REF	86	40.7
Years 10+	44	25.0			

Notes: The tests refer to two-sided non-parametric Fisher Exact tests where the null hypothesis states that the participation rates across demographic groups are equal. The stars refer to significance levels: 10% (*), 5% (**), 1% (***), and 0.1% (****). The results in regard to rank indicate that the combined participation rate for readers and professors is significantly lower than that of either lecturers or senior lecturers.

Table 3
Multivariate Probit Analysis of Participation Across Demographics

	1	2	…cont'd		
Male	-0.04	-0.03			
	(0.09)	(0.09)		1	2
SL	0.16	0.07	Probation	0.17	0.15
	(0.13)	(0.12)		(0.19)	(0.18)
ReadProf	-0.27	-0.30	REF	-0.15	-0.13
	(0.09)***	(0.09)****		(0.09)*	(0.09)
OtherRank	-0.18	-0.18	Group Effects	Yes	No
	(0.16)	(0.15)			
R+T	-0.29	-0.21	Obs	142	142
	(0.31)	(0.26)	LogLik	-69.26	-73.09
Years	-0.01	-0.01	LR	41.79****	34.13****
	(0.01)*	0.01	Pseudo R^2	0.23	0.19
PT	-0.25	-0.26			
	(0.11)**	(0.09)***			

Notes: A multivariate probit analysis models the probability of an individual's participation as a function of multiple explanatory variables. In models 1 and 2 above, the explanatory variables include the demographic information, but model 2 excludes the effects of an individual's subject discipline group. For each variable, the table reports the estimated marginal effect on the probability of participation, together with the relevant standard deviation in brackets. The significance level of each variable is indicated with stars: 10% (*), 5% (**), 1% (***), and 0.1% (****). LR refers to test of the overall significance of the model variables, and Pseudo R^2 is a measure of goodness of fit.

Table 4
Participants' Views After Participation (Exit Survey)

	Very unlikely	Somewhat likely	Neutral	Likely	Very likely
Likelihood of Future Forum Participation	0%	2%	10%	50%	36%
Likelihood of Encouraging a Colleague to Attend	0%	2%	17%	57%	24%
Likelihood of Using Ideas	2%	2%	29%	52%	14%

Table 5
Participants' Views on Relevance of Cop (Impact Survey)

Views on the Benefits of the CoP	Not at all	Of limited relevance	Neutral	Relevant	Very relevant
Providing you with a different learning opportunity	4%	4%	17%	54%	21%
Encouraging you to try novel things	0%	8%	21%	46%	25%
Improving your confidence as a teacher	4%	4%	21%	63%	8%
Providing you with motivation to enhance your teaching	4%	4%	21%	50%	21%
Helping you to balance teaching with your other roles	8%	4%	21%	54%	13%
Encouraging you to talk about teaching with colleagues	8%	4%	33%	46%	8%
Providing you with novel ideas	4%	8%	38%	33%	17%
Encouraging you to seek support from colleagues	8%	8%	42%	38%	4%
Letting you express your views about teaching	25%	13%	38%	25%	0%

Table 6
Participants' Views on Type of Impact Experienced (Impact Survey)

Type of Impact (Multiple Responses)	% of Respondents
Rethink my teaching skills and my approach to teaching	29%
Update my teaching skills and my approach to teaching	25%
Design new teaching material	25%
Interact with colleagues	17%
Help with pedagogical research	4%
Develop curriculum	13%
Mentor others	4%
Other	4%

Table 7
Impact Across Demographic Variables

	Total	% Participated and Reported Impact		Total	% Participated and Reported Impact
All	142	9.9	R+T	120	8.3*
Male	88	8.0	T+S	18	22.2
Female	54	13.0	R Only	4	0.0
Lecturer	53	18.9	PT	20	5.0
SL	29	3.4*	FT	122	10.7
ReadProf	45	0.0	Probation	11	9.1
OtherRank	17	0.0	Non-Prob	131	9.9
Years <5	73	11.0	REF	56	3.6**
Years 5-10	25	16.0	Non-REF	86	14.0
Years 10+	44	4.5			

Notes: The tests refer to two-sided non-parametric Fisher Exact tests where the null hypothesis states5 that the impact rates across demographic groups are equal with significance 10% (*), 5% (**), 1% (***), and 0.1% (****).

Adapting Pink Time to Promote Self-Regulated Learning across Course and Student Types

Timothy D. Baird, David J. Kniola,
Kimberly A. Carlson, and Donald G. Russell
Virginia Tech

Joel Hartter and Sarah Rogers
University of Colorado, Boulder

Joseph Tise
Penn State University

To explore new opportunities to promote self-regulated learning (SRL) across a variety of contexts, this study applies a novel assignment called Pink Time in seven different courses at two universities. The assignment asks students to "skip class, do anything you want, and give yourself a grade." In each case, instructors adapted Pink Time to fit the needs of their course. Altogether, 165 students completed 270 self-directed projects and self-assessments targeting five component behaviors of SRL. Findings show that: (1) students were more likely to perceive success in certain behaviors of SRL than in others; (2) students' perceptions across courses were similar for some behaviors but not others; and (3) subsequent iterations of the assignment supported higher perceived measures of some SRL behaviors but not others. Together these findings illustrate the value and flexibility of this progressive assignment as well as persistent challenges in supporting students' SRL.

In the past few decades, self-regulated learning (SRL) has become a key concern for scholars of teaching and learning and education researchers (Dignath & Büttner, 2008; Nilson, 2013; Winne, 2005). SRL, which involves students' abilities to define work for themselves, make plans, and self-monitor and evaluate (Azevedo, Moos, Johnson, & Chauncey, 2010), is positively associated with academic achievement and motivation (McCombs, 1989; Zimmerman, 1990). Furthermore, the skills and processes that characterize SRL are precisely what the modern economy rewards. However, even as the benefits of SRL become clearer, many college students have become conditioned to seek out and follow instructions from an external authority figure (Deresiewicz, 2014).

To respond to this entrenched and narrow vision of credentialism, especially in the U.S., new disruptive strategies are needed to encourage students to serve as leaders of their own education. Recently, a novel strategy to promote SRL and academic motivation was proposed and tested in a single university classroom (Baird, Kniola, Lewis, & Fowler, 2015). Pink Time (PT) is an assignment, initially inspired by Daniel Pink's book *Drive* (2009), in which university students are instructed to "skip class, do anything you want, and grade yourself." Students are then required to return to class, share their activities publicly, and complete an instructor-provided self-assessment. The logic here is to broaden students' perceptions of what learning is and where it happens, promote student autonomy, undermine extrinsic motivations (like instructor-assigned grades), and encourage metacognitive reflection.

This seemingly radical assignment raises two key questions: Can the PT assignment be applied effectively in diverse academic contexts? What aspects of SRL does it address? To respond to these, we have applied the PT assignment in seven different courses at two universities, with two degree-types, across a range of disciplines. In each case, the assignment was adapted to best suit the instructor's philosophy and course schedule. In this paper, we seek to contribute to the scholarship on SRL in university settings by comparing and contrasting applications of the assignment and their attending outcomes. In doing so, we move beyond a theoretical understanding of SRL as a metacognitive process and move towards a practical application designed to facilitate a cognitive and affective learning experience.

Given the current level of interest surrounding SRL generally and PT specifically, our study focused on two central research questions: (RQ1) How do students' self-assessments for different SRL behaviors compare across courses and degree-types?, and (RQ2) How do students' self-assessments of SRL behaviors change in subsequent iterations of the assignment within a course?

Literature Review

Learning in Higher Education

To strengthen teaching and learning in higher education, educators and scholars have examined topics that range from the social dynamics involved in learning to the learning functions of the brain. Despite the inherent complexity of the learning process, science-based understanding of how learning works has progressed rapidly in recent decades. Spurred by advances in medical and computer technologies, our understanding of the brain and the cognitive processes associated with learning have grown (Lee et al., 2016; Zatorre, Fields, & Johansen-Berg, 2012). Advances in the learning sciences have led to new theories of how learning occurs and new practical applications for teaching. Three broad learning theories – behaviorism, cognitivism and constructivism – hold that learning occurs *within* the individual. In addition, new theories, like connectivism (Siemens, 2005), which highlight the

influences of computer-based technologies and personal networks, have advanced the idea that learning happens *outside* the individual.

Studies of the brain have led to important new insights for higher education. This work has expanded our understanding of how students experience and organize knowledge (Ertmer & Newby, 1993); the role of student intellectual, social, and emotional development (Chickering & Reisser, 1993); and the impacts of learning environments and institutional climate (Browman & Destin, 2016; Hall & Sandler, 1982; Strange & Banning, 2015), which can be unique in university settings (Pascarella & Terenzini, 2005). Insights in these areas build upon a longstanding appreciation of learning as a social and interactive process (Dewey, 2007 [1938]; Vygotsky, 1978) where a "total system" of links among students, teachers, activities, and outcomes supports learning (Biggs, 1993). Taken together, these foci on the student and the context have driven recent research on students' diverse motivations, interests and competencies (Biggs, 1987; Jones, 2009; Schunk, Meece, & Pintrich, 2014) as well as related student-centered approaches.

Principal among these are approaches that encourage metacognition – or students' capacities to examine the broader contexts of their own learning. Metacognition itself has been a theme in the scholarship of teaching and learning for decades. Early researchers, especially Flavell (1979), identified metacognition as an acute awareness of knowledge as a cognitive phenomenon, or cognitive monitoring. Later, Metcalfe and Shimamura (1994) described it more simply as "what we know about what we know" (p. xi). While cognition is the process of thinking, metacognition is an intentional "process of reflecting on and directing one's own learning" (Pellegrino, Chudowsky, & Glaser, 2001). Research shows that two components are central to metacognition: (1) awareness of thoughts and (2) control over the direction of the thought process (Brown, Bransford, Ferrara, & Campione, 1983; Hacker, Dunlosky, & Graesser, 2009; Paris & Winograd, 1990; Pintrich, 2002).

Self-Regulated Learning

Researchers have extended the theory of metacognition to formal learning environments and academic learning. An approach, championed by Pintrich (1991) and others, which focuses on information processing, is now more commonly known as SRL. Conceptually, SRL involves student regulation of cognition, motivation, behavior, and context – each requiring effort to control tasks and to act as an agent of their own thinking (Kluwe, 1982; Zimmerman, 1989). This approach maintains that students must cultivate intentionality and self-awareness with their learning

(Paris & Winograd, 1990; Pintrich, 2002) by constructing thoughts, shifting behaviors, and monitoring consequences (Hacker et al., 2009).

Students who cultivate an SRL approach to learning more effectively learn on their own. They define tasks, set goals, make plans, select strategies, self-evaluate, and self-monitor (Azevedo et al., 2010). They have developed personalized processes to acquire and retain information and construct knowledge and to reflect on what they know and do not know (Zimmerman & Kitsantas, 2005). The ways these students perceive learning, use cognitive processes to regulate learning behaviors, and manage motivation all play a substantive role in their ability to achieve academic success. As actively engaged participants in their learning, students exhibit a sort of self-oriented feedback loop (Carver & Scheier, 1981), persist in learning activities (McCombs, 1989), and perceive global and domain specific self-efficacy (Pajares, 1996). Simply stated, self-regulated learners create for themselves a personal environment within which they can efficiently and effectively learn.

Numerous studies have identified a broad range of factors that support SRL, including students' dispositional characteristics and instructors' pedagogical strategies. Students' beliefs about their ability to perform a task and the value they place on the task (Wigfield & Eccles, 2000), along with the belief that learning and mastery are worthy goals, promote SRL (Pintrich, 1999; Pintrich & de Groot, 1990). Emotion has been another focus of study (Pekrun, Goetz, Titz, & Perry, 2002). Recently, Mega, Ronconi, and De Beni (2014) found that undergraduates' positive emotions predicted several aspects of SRL, including organization of study time and materials, evaluation of learning, preparation for exams, and metacognition. And Madjar, Kaplan, and Weinstock (2011) found that positive affect in middle and high school students was directly related to SRL strategy use. Relatedly, negative affect and adverse changes in middle school students' academic emotions have been linked to maladaptive SRL strategy use and declines in SRL, respectively (Ahmed, van der Werf, Kuyper, & Minnaert, 2013; Madjar et al., 2011; Madjar, Weinstock, & Kaplan, 2017).

One area of scholarship has focused on instructor-based strategies to promote SRL. The relationship between problem-based learning (PBL) and SRL has been examined in many contexts with findings generally supporting the hypothesis that students engaged in PBL exhibit higher measures of SRL compared to students in traditional lecture-based curricula (Blumberg, 2000). In one carefully controlled study, Sungur and Tekkaya (2006) found that PBL students demonstrated higher values of several SRL components including goal setting, task value, strategy

Table 1
Study Course Characteristics and Pink Time Adaptations

Course Field	Degree Level	University (A or B)	Num. of Students	Num. of Pink Times	Assignment structure (adaptations)
Education	Grad	A	15	1	Do anything (related to course). Grade yourself anonymously.
Environmental Studies	Grad	B	10	2	Do anything (related to course). Grade yourself (publicly).
Environmental Studies 1	Undergrad	B	26	2	Do anything (related to course). Grade yourself (publicly).
Environmental Studies 2	Undergrad	B	28	1	Do anything (related to course). Grade yourself anonymously.
Management	Undergrad	A	22	2	Do anything (related to course). Grade yourself anonymously.
Military Leadership	Undergrad	A	38	1	Do anything (related to course). No grades.
Sustainability	Undergrad	A	26	3	Do anything. Grade yourself anonymously.

use, critical thinking, metacognition, and peer learning compared to control-group students. Others have described the relationship between PBL and SRL as reciprocal with SRL serving as a critical skill for success in PBL (English & Kitsantas, 2013). Now scholars are distinguishing between types of non-traditional pedagogical approaches, finding in one instance that a project-based learning strategy was associated with higher measures of SRL than a PBL strategy (Stefanou, Stolk, Prince, Chen, & Lord, 2013).

Other instructor-based strategies to promote SRL focus on instructor feedback, especially formative assessment. Formative assessment has been described as an approach that includes assessment *for* learning with assessment *as* learning (Clark, 2012). Assessment *for* learning involves instructor feedback that describes how the learner can improve rather than feedback that simply praises or punishes (Hattie & Timperley, 2007). Assessment *as* learning involves collaborative and individual reflection on evidence of learning (AAG, 2008). Others have pointed out that instructors should work to identify, and build on, students' own perceptions and assessments of their work (Nicol & Macfarlane-Dick, 2006). Relatedly, interactions between teacher autonomy support and structure can foster SRL (Jang, Reeve, & Deci, 2010; Sierens, Vansteenkiste, Goossens, Soenens, & Dochy, 2009).

While these and other strategies exist to promote SRL, including motivation and metacognitive strategies, Dignath and Büttner (2008) have pointed out through their review of studies on how to promote SRL: "[I]t becomes obvious that there is still a gap in the research on how teachers can bring SRL into the classroom. Most studies report attempts to improve students' academic self-regulation, but only little information is available about supporting teachers in how to do so" (p. 232). We use this as a point of departure for this study with the purpose of investigating the viability of Pink Time as a strategy for promoting SRL.

Study Setting

Following an introduction and examination of the PT assignment by Baird et al. (2015), several colleagues expressed interest in applying the assignment in their own classes. This study has grown from these inquiries. Together, six faculty members from two universities adapted the assignment in seven classes: five at the undergraduate level and two at the graduate level. These courses are in the fields of Education, Environmental Studies, Management, Military Leadership, and Sustainability. In each case, the faculty member adjusted the original assignment (described in the introduction) as she/he deemed appropriate for the course. These adjustments included changes to: (1) the content of the assignment (i.e., having PT activities relate directly to the course (note: the original assignment did not require this)); (2) the number of iterations of the assignment (e.g., 1, 2, 3); and/or (3) the use of self-grading (e.g., student's grades are private, shared publicly in class, or grades aren't included as part of the assignment). Table 1 lists the

Table 2
Characteristics of the Sample (N=165)

Characteristic	n	%N
Institution		
University A	101	61
University B	64	39
Academic Field of Course		
Environmental Studies	64	39
Education	15	9
Management	22	13
Military Leadership	38	23
Sustainability	26	16
Degree Level		
Undergraduate	114	69
Graduate	51	31
Iterations experienced by student		
One	81	49
Two	58	35
Three	26	16

study courses and key modifications of the assignment. For each of the courses, three attributes of the original assignment remained unchanged: (1) students were given a class period to work on their activities (i.e., skip class); (2) the following class period was used to share and discuss students experiences as a group; and (3) students completed a SRL instrument following each iteration of PT. IRB consent and data were collected by the instructors, each of whom is an author of this paper.

While describing students' specific PT activities is not the focus on this paper, it may be useful to note that students across the study courses engaged in a great diversity of projects and activities, which is consistent with earlier scholarship on PT (Baird et al., 2015). Students engaged in passive learning activities like reading, watching videos, or attending lectures on a wide range of topics. They also engaged in active and service-learning activities like designing and running small research projects, learning new skills, interviewing people, or volunteering. And other students engaged in creative activities like various writing projects (e.g., short stories, songs, poems), or graphic, visual and media arts activities (e.g., painting, illustration, video production). This paper focuses on students' perceptions of their own SRL as they relate to these diverse activities.

Methods

Sample

To address each research question, we collected and assessed student data from seven different courses at two universities where the PT assignment was applied during a single academic year. Universities were selected based on interest from participating faculty members. Courses were in the five previously identified fields and included graduate- and undergraduate- level courses. In each case, PT was modified by the instructor to suit the needs of their specific course (e.g., determining level or relatedness of the project topic to course content, etc.) (see Table 1) and was run between one and three times during the semester. Prior to the initial PT activity, students in each class were shown a Daniel Pink video that describes his observations in *Drive* that extrinsic motivations can crowd out intrinsic motivations. Students were not introduced to the SRL concept specifically, but they were informed that the point of the PT assignment was to pursue their interests and take charge of their own learning. Student participants were routinely enrolled in each course and were not randomly assigned. Altogether, 165 students completed 270 PT projects (since students in some courses were asked to complete multiple PT projects). Table 2 shows the characteristics of the study sample.

Instrument

For each project, students completed a self-assessment instrument designed to measure the relationship between their own perceptions of their work and a set of behaviors indicative of SRL (Nilson, 2013;Schunk & Zimmerman, 2012; Zimmerman, 1990). The rubric, which was originally co-designed by researchers and students (Baird et al., 2015), distinguished between multiple SRL behaviors, including: Choice, Complexity, Effort,

Persistence and Curiosity. Baird et al. (2015) defined these categories thusly:

> [W]e define Choice as a series of decisions about the source of knowledge, connections to the course material and individual interests. Complexity is defined as a surface-level versus deep approach to inquiry and learning. Effort is defined as the amount of time spent on an activity and the intentionality with which the activity is conducted. Persistence is defined as the student's ability to work through a course of action despite difficulty. More broadly, this is the ability to work through challenges and roadblocks. And Curiosity is defined as inquisitive thinking and discovery whereby the student grounds her work in inspiration rather than simply information collection (p. 149).

For each SRL behavior, the rubric distinguished between developing, competent and exemplary levels of behavior. Descriptions of these behaviors and levels, which are the same as those used in Baird et al. (2015), are presented in Table 3. For each behavior, students identified the most appropriate level of behavior. For example, a student might select "developing" if she passively acquired new knowledge (Choice) or performed an activity for a limited amount of time (Effort). In cases where the student selected multiple levels, we retained the higher level in order to highlights students' own perceptions of their success.

Procedures

The study was designed to introduce a treatment (PT) and measure student perceptions of SRL following the assignment. To address each research question, we conducted descriptive and inferential statistical analyses of student-generated data acquired through the instrument. Our assessment focused initially on the percentage of students who reported each behavior level for each SRL behavior. In each course, the instructor assigned at least one iteration of the assignment (n=7). We compared percentages of students reporting Developing, Competent, and Exemplary for each of the SRL behaviors (Choice, Complexity, Effort, Persistence, Curiosity) across each of the classes. This was done to highlight differences across courses and degree types (RQ1). For the courses where instructors assigned two or more iterations of the assignment (n=4, three undergraduate and one graduate), we compared changes, across courses, in the percentages of students reporting each SRL behavior level (RQ2). Only one course completed three iterations of PT.

As with any cognitive process, SRL is problematic to directly observe. Our goal was to identify a set of observable behaviors easily recognizable by student participants. Combined, these behaviors serve as a proxy for the phenomenon of interest in this study. We constructed a new dependent variable representing

Table 3
Self-regulated Learning Instrument (reproduced from Baird et al. 2015)

Behaviors	Levels of Behavior		
	Developing	Competent	Exemplary
Choice	I acquired new knowledge passively.	I acquired new knowledge actively.	I created new knowledge.
Complexity	I thoughtfully and accurately engaged 1 learning tool for my activity: reading/listening/watching; socially interactive; creative/design; computational; etc.	I thoughtfully and accurately engaged 2 learning tools for my activity: reading/listening/watching; socially interactive; creative/design; computational; etc.	I thoughtfully and accurately engaged 3 or more learning tools for my activity: reading/listening/watching; socially interactive; creative/design; computational; etc.
Effort	I spent less than 3 hours on my activity.	I spent between 3 and 5 hours on my activity.	I spent more than 5 hours on my activity.
Persistence	My values, beliefs, and skills were minimally challenged by my activity.	My values, beliefs, and skills were somewhat challenged by my activity.	My values, beliefs, and skills were significantly challenged by my activity.
Curiosity	I explored my activity at a basic level, resulting in little insight beyond the basic facts and a low level of interest in the subject.	I explored my activity with some evidence of depth, resulting in new insight and mild interest in the subject.	I explored my activity in depth resulting in interest in the subject.

propensity to engage in SRL behaviors by first weighting and then summing behavior levels from the instrument. Developing responses were weighted "1," competent responses were weighted "2," and exemplary responses were weighted "3". For each student, weighted responses of the five SRL behaviors, were summed to create a total SRL score. The possible range of scores is 5 (five items each weighted for developing) to 15 (five items weighted for exemplary). In the few cases where a student did not answer an item on the instrument, the total score may be less than 5. The total score represents a student's propensity to engage in SRL behaviors.

It is important to note that the response options we use to construct the SRL propensity score are categorical. Arguably, converting categorical data to continuous data is problematic in that it converts a category used by participants to define themselves into a numeric expression defined by the researchers. However, continuous variables may be more useful in quantitative comparisons of multiple groups of data. In theory, continuous dimensions may ultimately underline ordinal, categorical measures. Fundamentally, the factors we identify represent dimensions of a construct (now represented as a continuous variable) that provides more robust information regarding any differences among values of a categorical response (Shoemaker, Tankard Jr, & Lasorsa, 2003).

Results

Table 4 presents, by course and degree-level, students' self-reported levels for each SRL behavior during PT1 (RQ1). Generally, these results exhibit a number of patterns. First, for the Choice and Persistence behaviors, each of the course distributions of behavior levels are peaked. This means that the competent level, for each class, has the highest percentage with lower percentages for the developing and exemplary levels. Second, for six courses, the Curiosity behavior exhibits a positively sloped distribution, with the developing having the lowest percentage and exemplary having the highest. One undergraduate course had a peaked distribution. These three behaviors (Choice, Persistence, and Curiosity) therefore exhibit notable consistency across courses. The remaining two behaviors are more diverse. Third, for the Complexity behavior, four courses have positive-sloped distributions, two courses have peaked distributions, and one has a U-shaped distribution wherein the Competent level has the lowest percentage. Lastly, the Effort behavior has four courses that have peaked distributions, two with negative-sloped distributions, and one with a positive-sloped distribution. For neither of these more "diverse" behaviors is degree-level a relevant distinction.

Figures 1 through 5 present measures of change for each of the four courses where two iterations of the

assignment were conducted (RQ2). For each SRL behavior, we plot the change in the percentage of students reporting each behavior level for each class. These changes are represented with stacked bar-graphs with increases plotted above zero on the y-axis and decreases plotted below zero. For example, if distribution of students reporting competent, developing and exemplary for an SRL behavior went from 40%, 40%, 20% respectively in PT1 to 30%, 30%, 40% in PT2, the stacked bar would show an increase of 20% (represented above 0) for exemplary, and a corresponding decrease of 10% for each of the other two levels (represented below 0). This approach shows the magnitude and direction of change for each course and SRL behavior level. First, the magnitude of change between PT1 and PT2 is generally greater for Choice, Complexity and Effort than for Persistence and Curiosity across courses. Second, the direction of change is generally positive across courses. The bars show that exemplary is generally above 0 while developing is generally below. More specifically, of the 20 bars presented (one bar for each of four classes for each of 5 SRL behaviors), 13 show the percentage of students reporting higher behavior levels increasing and lower behavior levels decreasing. Five bars show a "split" where an increase or decrease in competent corresponds to a decrease or increase, respectively, in developing and exemplary. Two bars show increases in lower-level behaviors at the expense of higher-level behaviors (see Figs. 3 and 5).

Given that these analyses indicate some differences across SRL behaviors, some similarities across courses, and some growth across iterations of the assignment, we also examined SRL propensity scores to investigate: (1) growth across iterations, and (2) differences between undergraduate and graduate students. We did not, however, examine institutional differences or course-level differences.

Overall mean scores for each iteration of the assignment are reported in Table 5. Mean scores for pooled undergraduate and graduate students show a change in propensity scores from PT1 to PT2. We ran separate paired sample t tests between PT1 and PT2 and then PT2 and PT3. There was a significant difference between PT1 (M=10.35, SD=2.26) and PT2 (M=11.03, SD=2.22), $t(77)$=2.17, p=.03. The difference between PT2 and PT3 was not significant.

Lastly, we applied an independent sample t test and found statistically significant differences by degree level. With PT1, graduate students report higher propensity scores (M=10.63, SD=2.34) than undergraduate students (M=9.73, SD=2.37), $t(159)$=2.21, p=.03. In PT2, while the mean scores for graduate students (M=11.47, SD=1.73) were higher than the scores for undergraduates (M=10.79, SD=2.45), the difference between these two groups was not statistically significant. No graduate students participated in PT3.

Table 4
Percentages of Students, by Course, Reporting for Each SRL Behavior Level for PT1

Behavior Levels	Education	Env. Studies (Grad)	Env. Studies (Ugrad 1)	Env. Studies (Ugrad 2)	Military Leadership	Management	Sustainability
				Courses			
Choice							
Developing	7%	20%	17%	18%	19%	33%	36%
Competent	73%	70%	57%	64%	69%	52%	56%
Exemplary	20%	10%	26%	18%	11%	14%	8%
Total	100%	100%	100%	100%	100%	100%	100%
*n**	15	10	23	28	36	21	25
Complexity							
Developing	8%	0%	22%	11%	24%	45%	12%
Competent	62%	50%	39%	59%	35%	14%	36%
Exemplary	31%	50%	39%	30%	41%	41%	52%
Total	100%	100%	100%	100%	100%	100%	100%
n	13	10	23	27	37	22	25
Effort							
Developing	15%	0%	5%	26%	63%	27%	42%
Competent	54%	30%	80%	52%	21%	73%	42%
Exemplary	31%	70%	15%	22%	16%	0%	15%
Total	100%	100%	100%	100%	100%	100%	100%
n	13	10	20	27	38	22	26
Persistence							
Developing	38%	22%	18%	26%	32%	5%	26%
Competent	46%	56%	59%	39%	50%	76%	48%
Exemplary	15%	22%	23%	35%	18%	19%	26%
Total	100%	100%	100%	100%	100%	100%	100%
n	13	9	22	23	34	21	23
Curiosity							
Developing	0%	0%	0%	4%	3%	5%	0%
Competent	36%	30%	41%	41%	59%	33%	44%
Exemplary	64%	70%	59%	56%	38%	62%	56%
Total	100%	100%	100%	100%	100%	100%	100%
n	14	10	22	27	38	21	25

* Student non-responses are excluded from the percentages, which correspondingly show percentages relative to response rather than class size.

Table 5
Overall SRL Propensity Scores

	n	Min.	Max.	Mean SRL	Std. Dev.
PT 1	161	3	15	9.99	2.39
PT 2	82	5	15	11.07	2.19
PT 3	26	4	15	11.08	2.48

Discussion

These results describe how a range of students in different types of courses responded to derivations of the PT assignment. Specifically, the results illustrate how students' self-assessments of multiple SRL behaviors varied (RQ1)

and how subsequent iterations of the assignment were associated with changes in these behaviors (RQ2). Taken together these findings provide some support for the adaptability of the PT assignment across a range of course and student types and also highlight its strengths and weaknesses in promoting SRL.

Two main takeaways from students' initial experiences with PT are evident in Table 4. First, students' patterns of behavior levels are broadly consistent for some SRL behaviors but not others. As noted above, distributions of behavior levels were uniformly peaked for Choice and Persistence. Similarly, six of seven courses had positive-sloped distributions for Curiosity. This suggests that students across courses and degree levels are responding similarly to these SRL behaviors. Second, students reported consistently higher behavior levels for some SRL behaviors than others. A comparatively higher percentage of students indicated "exemplary" performance for the Complexity and Curiosity components, while a lower percentage did for Choice and Persistence. This is not necessarily surprising. Lower measures of Choice and Persistence may signal students' familiarity with passive learning experiences and general discomfort with activities that challenge their values, beliefs or skills (Graham, Tripp, Seawright, & Joeckel, 2007; Liu & Littlewood, 1997) and general discomfort with activities that challenge their values, beliefs or skills. Alternatively, higher measures of Curiosity and Complexity may highlight students' desire, and perceived agency, to select activities that interest them and explore them in diverse ways, respectively (Stefanou, Perencevich, DiCintio, & Turner, 2004).

Stratifying pooled graduate and undergraduate students and integrating SRL behaviors into a single SRL propensity score (see Table 5) offered additional insights. While graduate students reported significantly higher

SRL scores than undergraduates for PT1, the difference was not dramatically higher. This gives rise to a few ideas. First, graduate students likely approach their educations in more nuanced ways and actively seek deep learning experiences. While many graduate students are at the beginning stages of becoming independent thinkers, others have already sorted out learning behaviors indicative of SRL even without explicit knowledge of SRL. In other words, graduate students are generally highly successful students who are curious about the world around them, are persistent, sustain maximum effort, embrace complexity, and make choices that challenge their world views (Artino & Stephens, 2009; Pintrich, 2003). One potential explanation for why the difference between graduate students and undergraduate student groups is not greater here is that student responses to the instrument items were likely influenced by prior education and life experiences. Graduate students, for example, may have been more self-aware, and more critical of their learning behaviors. In other words, undergraduate students may have overinflated their responses while graduate students may have represented theirs more accurately.

For those courses that offered two iterations of PT, Figures 1-5 highlight where measures of SRL components changed. Generally, students progressed from lower behavior levels to higher levels, with the largest increases in Choice, Complexity, Effort and more modest increases in Persistence and Curiosity (with exceptions). A closer look at each SRL behavior is illustrative.

Figure 1

Change in percentage of student reporting developing, competent, exemplary for CHOICE between PT1 and PT2

Figure 2

Change in percentages of students reporting developing, competent, and exemplary for COMPLEXITY between PT1 and PT2

Figure 3

Changes in percentages of students reporting developing, competent, and exemplary for EFFORT between PT1 and PT2.

Figure 4.

Changes in percentages of student reporting developing, competent, and exemplary for PERSISTENCE between PT1 and PT2
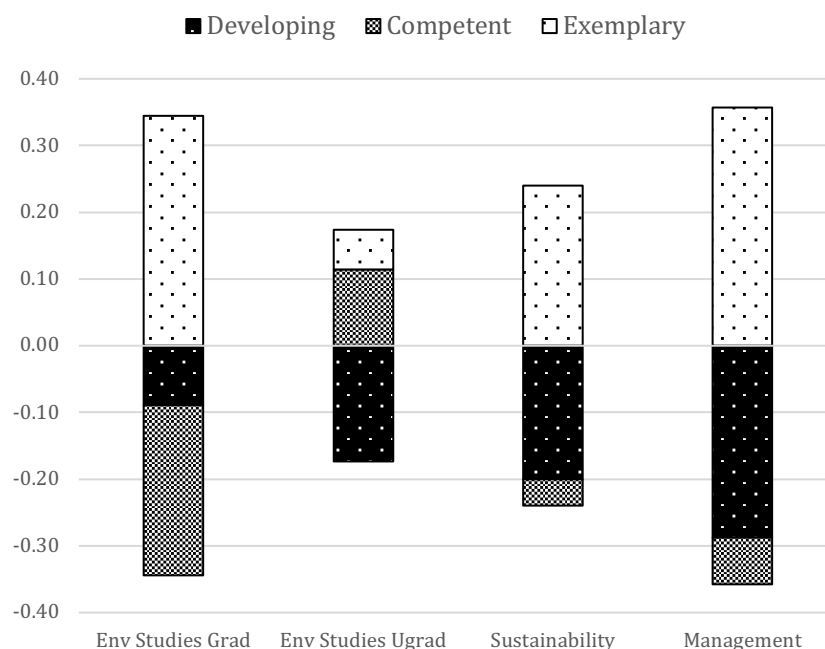
■ Developing   ▨ Competent   ☐ Exemplary
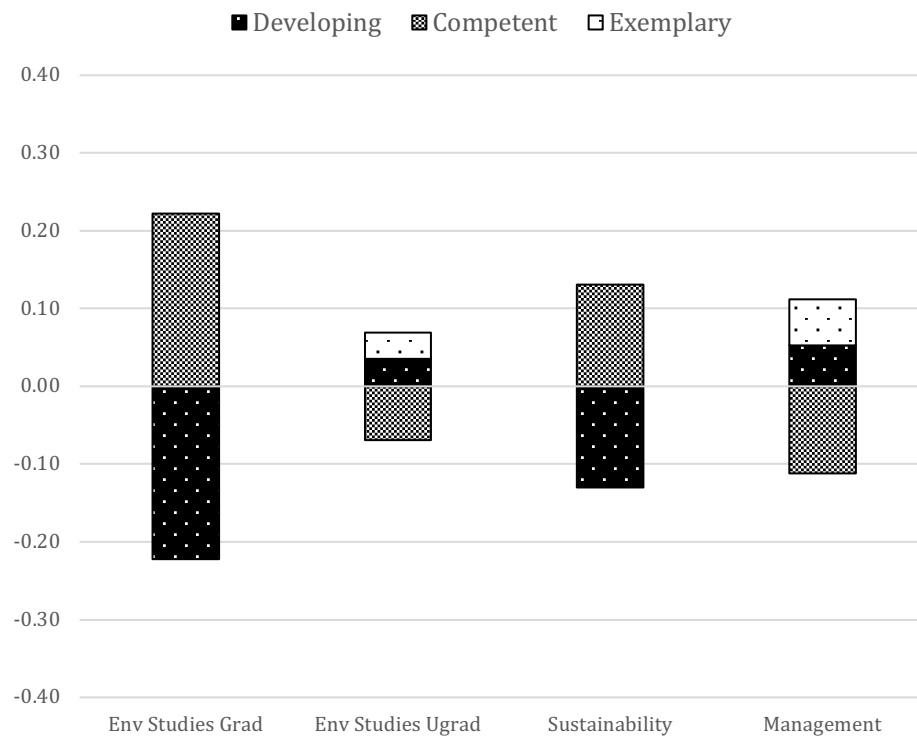
Figure 5

Changes in percentages of students reporting developing, competent, and exemplary for CURIOSITY between PT1 and PT2. (The asymmetric bar results from student non-responses.)
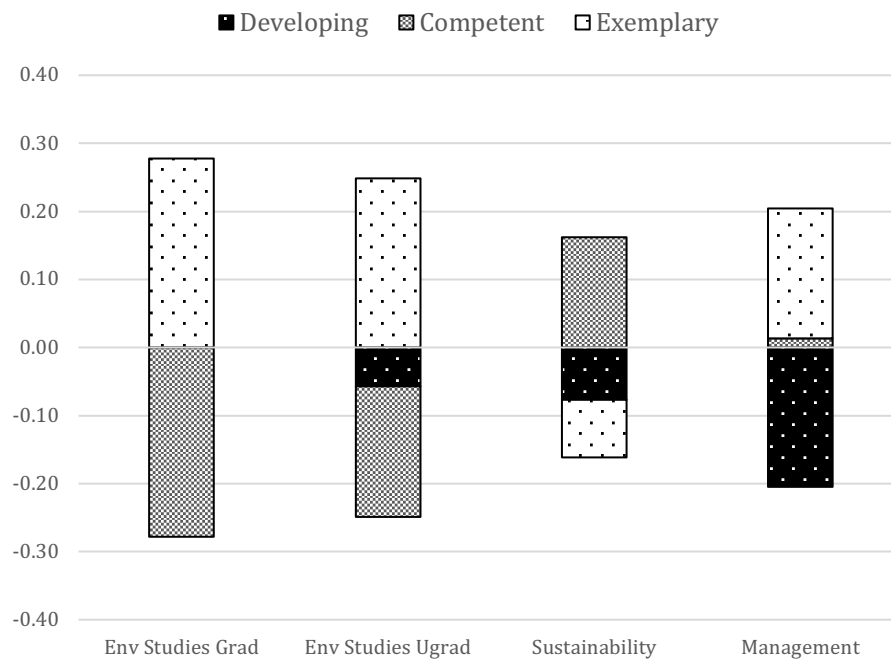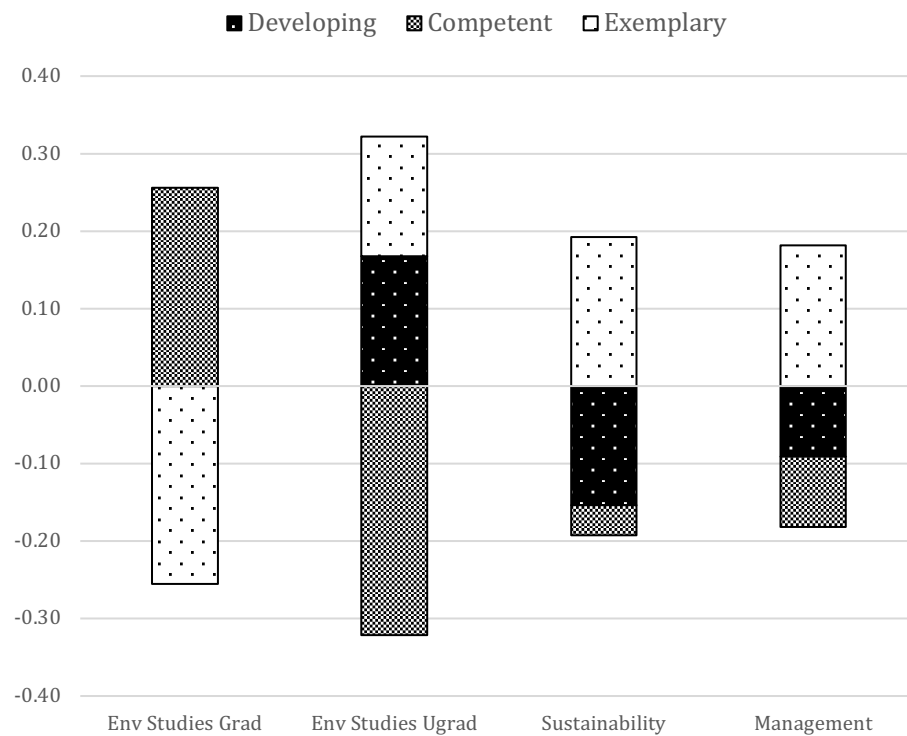
■ Developing   ▨ Competent   ☐ Exemplary
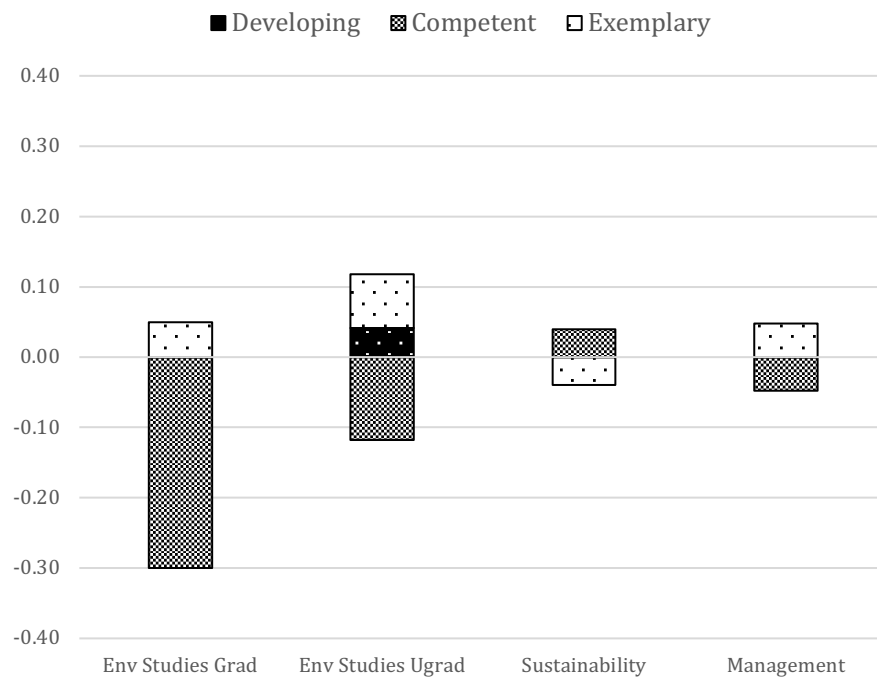
For PT1 the majority of students in each class rated Choice as competent (Table 4). Again, this is unsurprising given students' traditional academic experiences where they passively receive information and have little freedom. Intermediate ratings reflect students' preconceived notions of what is okay for a class project: of what will be viewed as valid by the authority figure in the class. Students view valid knowledge acquisition as passive (Lake, 2001; Machemer & Crawford, 2007), and to begin the PT assignment, they played it safe. But with the second iteration, students took more chances and broadened their learning activities (see Figure 1), especially when grades where de-emphasized (i.e., anonymous).

Ratings of Complexity varied in PT1 (see Table 4) with comparatively high percentages of exemplary and mixed percentages of developing and competent. In PT2 (see Fig. 2), three of four courses increased from lower behavior levels to higher ones. The fourth course, which offered students the most latitude to define their activities (i.e., "do anything"), saw an increase in competent with attending decreases in the lower level developing and the higher level exemplary.

Ratings for Effort also varied in PT1 with graduate students generally spending more time on their activities (see Table 4), which is unsurprising. With PT2, undergraduates tended to increase the amount of time while graduate students decreased the amount (see Figure 3), though still spent more time than undergraduates. This convergence of Effort across degree-levels may point to a type of perceived balance between the PT assignment and the other demands of student life and academics. Another potential explanation is that the timing of the assignment in the semester may affect time available to perform the activity, with "high workload" times crowding out time for the PT assignment (Kausar, 2010).

One of the more interesting findings here is that ratings of Persistence were comparatively low in PT1 (see Table 4) and changed comparatively little in PT2 (see Fig. 4), though there was some growth from lower behavior levels to higher levels. Graduate students reported the most positive growth. Here, students demonstrated a relative aversion to stepping outside their boxes. According to our rubric, few students indicated that their "values, beliefs, and skills were significantly challenged" by their activities. This also is unsurprising given the fear of failure that can be found in academic settings (Bartels & Magun-Jackson, 2009; De Castella, Byrne, & Covington, 2013). Student may have viewed this as an opportunity to lean into their interests rather than seek real challenges (Shim & Ryan, 2005). This finding especially will change the way some of us run this assignment in the future. If this is viewed as an important outcome, other strategies will be needed.

Lastly, ratings of *Curiosity* started comparatively high in PT1 (see Table 4) and didn't change much in PT2 (see Fig. 5). This seems to suggest that the students used the assignment, not unreasonably, to pursue existing interests rather than explore *potential* new ones. This finding has helped us to reflect on how we present the assignment in class. Indeed, we tell students that PT is an opportunity to pursue their interests. In the future, however, it may be worth suggesting that this is also an opportunity to pursue potential interests and even perspectives that contradict their own.

An important note here is that changes in students' self-assessments of SRL characteristics may reflect actual changes, changes in their perceptions of the SRL rubric (Table 2), or both. For example, with subsequent iterations of the assignment, students may come to interpret terms within the rubric, like "thoughtfully," "accurately," or "in depth," with greater fidelity. This may drive them to rate themselves lower on the rubric and/or work harder on their activities. In either case, however, learning can occur. One very important outcome of this assignment is to engage students in an exploration of what learning is, how it occurs, and what their responsibilities are. This has been a meaningful outcome for many students we've spoken with. Through PT, students have acquired new vocabulary and awakened to the types of behaviors that comprise SRL. Future research on this assignment should examine how student perceptions of the rubric change over time, as well as how students evolving understandings of learning promote more critical reflection on their own learning behaviors.

Faculty Experiences

One of the benefits of PT is the space it creates to reflect on learning and the course environment for both the students and the instructors. Our own experiences with PT have been diverse. First, we each came to the assignment for different reasons. Some felt that the spirit of the assignment related directly to the content of the course. Specifically, for courses that address issues of organizational behavior, citizenship, leadership, engagement, and motivation, the PT assignment directly supported the existing content and learning objectives. For other courses, the connection was indirect. In these cases, PT served more as an experiment than as an application. Some of us wanted to break out of our routines of lecture and encourage more student engagement. Others were just curious to see what students would come up with, as well as what new ideas may be generated for future classes. In some cases, instructors chose to seize on the opportunity to highlight "learning" itself as an object of critical thinking.

One thing we authors have shared is the anxiety that comes from surrendering control in the classroom. For most of us, using PT has meant cutting one to two weeks of content from our courses and disrupting the narrative arc of the class. Furthermore, there was no guarantee how students would respond to the type of freedom that PT provides. Students may not take the assignment seriously. They may simply give themselves high grades for poor work. Furthermore, the assignment may undermine our creditability with our colleagues. For each of us, the decision to go ahead with PT felt like a leap of faith.

Following our experiences, other commonalities emerged. One clear positive side of the assignment is that it provided real opportunities for instructors to get to know their students personally, as well as for the students to learn about (and from) each other. This can create more "buy-in" within the class and strengthen the learning community. In many cases, students surprised faculty members with their activities, which were creative, personal, ambitious, and impressive. But not all students respond this way. Some use PT as an opportunity to get caught up on other work or to de-stress in various ways, which one author has framed as self-care. It can be tempting for instructors to call out poor effort, but this action risks undermining the trust they are trying to build with students.

The value of this assignment for students, especially in terms of metacognition and self-reflection, can be challenging for instructors to observe directly. The time in class reserved for sharing and reflecting on students' activities, discussing challenges and opportunities with the assignment, and making plans for iteration (in some cases) is critical to shaping students' perceptions of PT as a valid pedagogical strategy, as well as instructors' perceptions of the outcomes associated with the assignment. Along these lines, instructors can bolster the assignment throughout the semester by: (1) prompting students to reflect on their own education and their agency to shape it; and (2) helping students connect their interests (gleaned from their PT activities) to the regular course content.

Conclusion

Many university students find it difficult to trust themselves to direct their own learning and simply want to be told what to do (Deresiewicz, 2014). To challenge these entrenched behaviors and patterns, new ideas are needed to "bring SRL into the classroom" (Dignath & Büttner, 2008). Here, we have presented a simple, instructor-based strategy that can be easily adapted to suit diverse instructors, students, disciplinary contexts, and pedagogical philosophies, and with notably similar outcomes. With PT, students have the autonomy to set goals, define tasks, make plans and self-evaluate

(Azevedo et al., 2010). Furthermore, they can nurture their own intrinsic motivations to acquire, retain and integrate information and to construct knowledge for themselves (Zimmerman & Kitsantas, 2005).

Additionally, PT can help to identify patterns and trends in various aspects of SRL. Following students' PT activities, instructor-led summative reflections on their SRL revealed that the assignment bolstered students' senses of agency surrounding learning and their use of various approaches to learning and creating (captured in *Complexity*), even while supporting their interests. Still, challenges remain. New strategies may be necessary to encourage students to challenge their own values, beliefs, and skills.

References

AAG. (2008). *AifL - Assessment is for learning* Retrieved from http://www.ltscotland.org.uk.assess

Ahmed, W., van der Werf, G., Kuyper, H., & Minnaert, A. (2013). Emotions, self-regulated learning, and achievement in mathematics: A growth curve analysis. *Journal of Educational Psychology, 105*(1), 150-161. doi:10.1037/a0030160

Artino, A. R., & Stephens, J. M. (2009). Academic motivation and self-regulation: A comparative analysis of undergraduate and graduate students learning online. *The Internet and Higher Education, 12*(3), 146-151. Retrieved from http://www.sciencedirect.com/science/article/pii/S1096751609000141 doi:10.1016/j.iheduc.2009.02.001

Azevedo, R., Moos, D. C., Johnson, A. M., & Chauncey, A. D. (2010). Measuring cognitive and metacognitive regulatory processes during hypermedia learning: Issues and challenges. *Educational psychologist, 45*(4), 210-223. doi:10.1080/00461520.2010.515934.

Baird, T. D., Kniola, D. J., Lewis, A. L., & Fowler, S. B. (2015). Pink time: Evidence of self-regulated learning and academic motivation among undergraduate students. *Journal of Geography, 114*(4), 146-157. doi:10.1080/00221341.2014.977334

Bartels, J. M., & Magun-Jackson, S. (2009). Approach–avoidance motivation and metacognitive self-regulation: The role of need for achievement and fear of failure. *Learning and Individual Differences, 19*(4), 459-463. Retrieved from http://www.sciencedirect.com/science/article/pii/S1041608009000284

Biggs, J. B. (1987). *Student approaches to learning and studying. Research monograph*. Washington, DC: ERIC.

Biggs, J. B. (1993). From theory to practice: A cognitive systems approach. *Higher education research and development, 12*(1), 73-85.

Blumberg, P. (2000). Evaluating the evidence that problem-based learners are self-directed learners: A review of the literature. In D. Evensen & C. E. Hmelo (Eds.), *Problem-based learning: A research perspective on learning interactions* (pp. 199-226). Mahway, NJ: Lawrence Erlbaum.

Browman, A. S., & Destin, M. (2016). The effects of a warm or chilly climate toward socioeconomic diversity on academic motivation and self-concept. *Personality and Social Psychology Bulletin, 42*(2), 172-187.

Brown, A., Bransford, J., Ferrara, R., & Campione, J. (1983). Learning, remembering and understanding. In J. H. Flavell & E. M. Markman (Eds.), *Handbook of child psychology: Vol. 3. Cognitive development* (4th ed., pp. 77-166). New York: Wiley.

Carver, C. S., & Scheier, M. F. (1981). Self-consciousness and reactance. *Journal of Research in Personality, 15*(1), 16-29.

Chickering, A. W., & Reisser, L. (1993). *Education and Identity. The Jossey-Bass Higher and Adult Education Series*: Washington, DC: ERIC.

Clark, I. (2012). Formative assessment: Assessment is for self-regulated learning. *Educational Psychology Review, 24*(2), 205-249. doi:10.1007/s10648-011-9191-6

De Castella, K., Byrne, D., & Covington, M. (2013). Unmotivated or motivated to fail? A cross-cultural study of achievement motivation, fear of failure, and student disengagement. *Journal of Educational Psychology, 105*(3), 861.

Deresiewicz, W. (2014). *Excellent sheep*. New York, NY: Free Press.

Dewey, J. (2007 [1938]). *Experience and education*. New York, NY: Simon and Schuster.

Dignath, C., & Büttner, G. (2008). Components of fostering self-regulated learning among students. A meta-analysis on intervention studies at primary and secondary school level. *Metacognition and Learning, 3*(3), 231-264. doi:10.1007/s11409-008-9029-x

English, M. C., & Kitsantas, A. (2013). Supporting student self-regulated learning in problem-and project-based learning. *Interdisciplinary journal of problem-based learning, 7*(2), 6.

Ertmer, P. A., & Newby, T. J. (1993). Behaviorism, cognitivism, constructivism: Comparing critical features from an instructional design perspective. *Performance improvement quarterly, 6*(4), 50-72.

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive–developmental inquiry. *American psychologist, 34*(10), 906.

Graham, C. R., Tripp, T. R., Seawright, L., & Joeckel, G. (2007). Empowering or compelling reluctant participators using audience response

systems. *Active Learning in Higher Education, 8*(3), 233-258.

Hacker, D. J., Dunlosky, J., & Graesser, A. C. (2009). *Handbook of metacognition in education*: Abingdon, UK: Routledge.

Hall, R. M., & Sandler, B. R. (1982). The classroom climate: A chilly one for women? Washington, DC: Association of American Colleges. (ED215628)

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81-112. Retrieved from http://journals.sagepub.com/doi/abs/10.3102/003465430298487

Jang, H., Reeve, J., & Deci, E. L. (2010). Engaging students in learning activities: It is not autonomy support or structure but autonomy support and structure. *Journal of Educational Psychology, 102*(3), 588-600. doi:10.1037/a0019682

Jones, B. D. (2009). Motivating students to engage in learning: The MUSIC Model of Academic Motivation. *International Journal of Teaching and Learning in Higher Education, 21*(2), 272-285.

Kausar, R. (2010). Perceived stress, academic workloads and use of coping strategies by university students. *Journal of Behavioural Sciences, 20*(1), 31.

Kluwe, R. H. (1982). Cognitive knowledge and executive control: Metacognition. In D. Griffin (Ed.), *Animal mind—human mind* (pp. 201-224). New York, NY: Springer.

Lake, D. A. (2001). Student performance and perceptions of a lecture-based course compared with the same course utilizing group discussion. *Physical Therapy, 81*(3), 896-902.

Lee, W. C. A., Bonin, V., Reed, M., Graham, B. J., Hood, G., Glattfelder, K., & Reid, R. C. (2016). Anatomy and function of an excitatory network in the visual cortex. *Nature, 532*(7599), 370.

Liu, N. F., & Littlewood, W. (1997). Why do many students appear reluctant to participate in classroom learning discourse? *System, 25*(3), 371-384.

Machemer, P. L., & Crawford, P. (2007). Student perceptions of active learning in a large cross-disciplinary classroom. *Active Learning in Higher Education, 8*(1), 9-30.

Madjar, N., Kaplan, A., & Weinstock, M. (2011). Clarifying mastery-avoidance goals in high school: Distinguishing between intrapersonal and task-based standards of competence. *Contemporary Educational Psychology, 36*(4), 268-279. Retrieved from http://www.sciencedirect.com/science/article/pii/S0361476X11000099

Madjar, N., Weinstock, M., & Kaplan, A. (2017). Epistemic beliefs and achievement goal orientations: Relations between constructs versus personal profiles. *The*

Journal of Educational Research, 110(1), 32-49. doi:10.1080/00220671.2015.1034353

McCombs, B. L. (1989). Self-regulated learning and academic achievement: A phenomenological view. In B.J. Zimmerman & D. Schunk (Eds.), *Self-regulated learning and academic achievement: Theory, research, and practice* (pp. 51-82). New York, NY: Springer.

Mega, C., Ronconi, L., & De Beni, R. (2014). What makes a good student? How emotions, self-regulated learning, and motivation contribute to academic achievement. *Journal of Educational Psychology, 106*(1), 121-131. doi:10.1037/a0033546

Metcalfe, J., & Shimamura, A. P. (1994). *Metacognition: Knowing about knowing.* Cambridge, MA: MIT press.

Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: a model and seven principles of good feedback practice. *Studies in Higher Education, 31*(2), 199-218. Retrieved from doi:10.1080/03075070600572090

Nilson, L. (2013). *Creating self-regulated learners: Strategies to strengthen students' self-awareness and learning skills*. Sterling, VA: Stylus Publishing, LLC.

Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of educational research, 66*(4), 543-578.

Paris, S. G., & Winograd, P. (1990). How metacognition can promote academic learning and instruction. *Dimensions of thinking and cognitive instruction, 1*, 15-51.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students* (Vol. 2). San Francisco, CA: Jossey-Bass.

Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Academic emotions in students' self-regulated learning and achievement: A program of qualitative and quantitative research. *Educational psychologist, 37*(2), 91-105. doi:10.1207/S15326985EP3702_4

Pellegrino, J., Chudowsky, N., & Glaser, R. (Eds.) (2001). *Knowing what students know: The science and design of educational assessment*. Washington, DC: National Research Council Division of Behavioral and Social Sciences and Education Committee on the Foundations of Assessment.

Pink, D. H. (2009). *Drive: The surprising truth about what motivates us*. New York, NY: Penguin.

Pintrich, P. R. (1991). *A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ)*. Ann Arbor, MI: National Center for Research to Improve Postsecondary Teaching and Learning. (ED338122)

Pintrich, P. R. (1999). The role of motivation in promoting and sustaining self-regulated learning.

International Journal of Educational Research, 31(6), 459-470. Retrieved from http://www.sciencedirect.com/science/article/pii/S0883035599000154

Pintrich, P. R. (2002). The role of metacognitive knowledge in learning, teaching, and assessing. *Theory Into Practice, 41*(4), 219-225.

Pintrich, P. R. (2003). A motivational science perspective on the role of student motivation in learning and teaching contexts. *Journal of Educational Psychology, 95*(4), 667.

Pintrich, P. R., & de Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology, 82*(1), 33-40. doi:10.1037/0022-0663.82.1.33

Schunk, D., Meece, J., & Pintrich, P. (2014). *Motivation in education: Theory, research, and applications.* Columbus, OH: Pearson.

Schunk, D. H., & Zimmerman, B. J. (2012). *Motivation and self-regulated learning: Theory, research, and applications.* Abingdon, UK: Routledge.

Shim, S., & Ryan, A. (2005). Changes in self-efficacy, challenge avoidance, and intrinsic value in response to grades: The role of achievement goals. *The Journal of Experimental Education, 73*(4), 333-349.

Shoemaker, P. J., Tankard Jr, J. W., & Lasorsa, D. L. (2003). *How to build social science theories*. Newbury Park, CA: Sage Publications.

Siemens, G. (2005). *Connectivism: Learning as network-creation.* Retrieved from http://www.elearnspace.org/Articles/networks.htm

Sierens, E., Vansteenkiste, M., Goossens, L., Soenens, B., & Dochy, F. (2009). The synergistic relationship of perceived autonomy support and structure in the prediction of self-regulated learning. *British Journal of Educational Psychology, 79*(1), 57-68. doi:10.1348/000709908X304398/full

Stefanou, C., Stolk, J. D., Prince, M., Chen, J. C., & Lord, S. M. (2013). Self-regulation and autonomy in problem- and project-based learning environments. *Active Learning in Higher Education, 14*(2), 109-122. doi:10.1177/1469787413481132

Stefanou, C. R., Perencevich, K. C., DiCintio, M., & Turner, J. C. (2004). Supporting autonomy in the classroom: Ways teachers encourage student decision making and ownership. *Educational psychologist, 39*(2), 97-110. doi:10.1207/s15326985ep3902_2

Strange, C. C., & Banning, J. H. (2015). *Designing for learning: Creating campus environments for student success*. Hoboken, NJ: John Wiley & Sons.

Sungur, S., & Tekkaya, C. (2006). Effects of problem-based learning and traditional instruction on self-

regulated learning. *The Journal of Educational Research, 99*(5), 307-320. doi:10.3200/JOER.99.5.307-320

Vygotsky, L. (1978). Interaction between learning and development. *Readings on the Development of Children, 23*(3), 34-41.

Wigfield, A., & Eccles, J. S. (2000). Expectancy–Value theory of achievement motivation. *Contemporary Educational Psychology, 25*(1), 68-81. Retrieved from http://www.sciencedirect.com/science/article/pii/S0361476X99910159

Winne, P. H. (2005). A perspective on state-of-the-art research on self-regulated learning. *Instructional Science, 33*(5), 559-565.

Zatorre, R. J., Fields, R. D., & Johansen-Berg, H. (2012). Plasticity in gray and white: Neuroimaging changes in brain structure during learning. *Nature Neuroscience, 15*(4), 528.

Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology, 81*(3), 329-339.

Zimmerman, B. J. (1990). Self-regulated learning and academic achievement: An overview. *Educational psychologist, 25*(1), 3-17.

Zimmerman, B. J., & Kitsantas, A. (2005). The hidden dimension of personal competence: Self-regulated learning and practice. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation*. (pp. 509-526) New York, NY: Guilford Press.

––––––––––––––––––––––––––

TIMOTHY D. BAIRD is an associate professor of human ecology in the Department of Geography and a senior fellow at the Institute for Creativity, Arts, and Technology at Virginia Tech. His research focuses on human-environment interactions, information and communication technologies, and student engagement. He teaches courses on sustainability and contemporary Africa. He has a PhD and an MA in geography from the University of North Carolina and a BA in economics from Bowdoin College.

DAVID J. KNIOLA is a faculty member in the School of Education at Virginia Tech. His teaching and research activities focus on quantitative methods, assessment, and higher education. He has a PhD from Virginia Tech in education leadership and policy studies, an MA in college student personnel from Bowling Green State, and a BS in human resource development from Oakland University.

JOEL HARTTER is an associate professor in the Environmental Studies Program and director of the Masters of the Environment graduate professional program at the University of Colorado Boulder. His research interests include human-environment interactions, land change science, and conservation. He has a PhD in geography from the University of Florida, an MS in forestry from Oregon State University, and a BSE in mechanical engineering and a BS in German from the University of Michigan.

KIMBERLY A. CARLSON is an assistant professor of practice in the Department of Management and the director of the Business Leadership Center in the Pamplin College of Business at Virginia Tech. Her teaching and research experiences include leadership, organizational and workforce development in national and local organizations, governments, and universities. She has a PhD in policy and public administration from Virginia Tech, an MSW in clinical social work from Florida State University, and a BS in psychology and a BA in theatre from Virginia Tech.

DONALD G. RUSSELL is a deputy commandant of cadets in the Virginia Tech Corps of Cadets (VTCC), an all-encompassing military-style leader development program. This role includes coaching, mentoring, and supporting cadets in their leadership and character development, as well as formal classroom lecture. He also oversees the annual VTCC study abroad program. He is a retired United States Air Force officer. He has a master's degree in military operational art and science from Air University, an MA in political science from the University of South Dakota, and a BA in political science from the University of Colorado Boulder.

SARAH ROGERS is a lecturer in the Environmental Studies Program at the University of Colorado Boulder. She teaches courses on natural resources, extractive industries, and renewable energy policy as well as freshman- and junior-level writing. She has also held several staff positions supporting initiatives related to environment, sustainability, and student services. She has an MS in Geology from Northern Arizona University and a BS in Geology from Williams College. And on the side, she helps manage a large-scale family farm.

JOSEPH TISE is a PhD student in educational psychology at Penn State University where he studies self-regulated learning, interest, and motivation. He has a BS in psychology from Virginia Tech.

Persistence of Multitasking Distraction Following the Use of Smartphone-based Clickers

Sihui Ma, Daniel G. Steger, Peter E. Doolittle, Andrew H. Lee, Laura E. Griffin, and Amanda Stewart
Virginia Tech

Clickers are used to improve student learning, motivation, and engagement. Smartphones can serve as clickers; however, instructional use of smartphones may lead to students multitasking between instructional and alternative media. This study investigates whether students are distracted after instructional use of smartphones in a lecture-based classroom. Outcomes were assessed through both self-reported smartphone use and in-class observations of actual smartphone use. Students were observed covertly for 5 minutes following instructional use of smartphones to determine whether multi-tasking distraction occurred and/or persisted following the instructional use of smartphones. Even though the self-reported data indicate that students disagreed to somewhat disagreed that smartphone use was a distraction, our findings show that 42% of students began to use their smartphones for non-instructional purposes immediately following the instructional episode, and 28% of students persisted in this behavior five minutes after the instructional episode ended. The observations contradicted the students' self-reported survey responses, thus emphasizing the need to critically consider self-reported outcomes related to multi-tasking distraction in the classroom. Policies or practices to limit multi-tasking distraction due to non-instructional use of smartphones in the classroom should be considered in cases where smartphones are being used for instructional purposes.

In pursuit of active learning strategies to deploy in college classrooms, personal response systems, typically called "clickers", have increased in use over time (Hunsu, Adesope, & Bayly, 2016; Sun, 2014). Traditional clickers involve the use of a handheld infrared or radio-frequency system that allows students to respond to instructor questions, while smartphone-based clickers allow students to use their personal phones to respond to instructor questions via cloud or web-based computing. In either case, student responses can be automatically summarized and displayed (if desired) in a slide-based presentation, such as PowerPoint (Banks, 2006). Clickers, traditional and smartphone-based, are tools to create an active learning environment within the classroom in the form of engagement and active cognitive/social processing (Mayer & Chandler, 2001) through question responding (Beatty, Gerace, Leonard, & Dufresne, 2006), feedback use (Mostyn, Meade, & Lymn, 2012), knowledge reactivation (Shapiro & Gordon, 2012), social exchange (Filer, 2010), just-in-time-teaching (Caldwell, 2007), and question-based teaching (Anderson, Healy, Kole, & Bourne, 2013).

That said, as clicker use transitions, at least in part, from using traditional clickers to smartphone-based clickers, an issue arises: Does the use of smartphone-based clickers for instructional purposes lead to an increase in student multitasking, with potential negative impacts on academic performance? Existing research is clear that the off-task multitasking use of laptops and smartphones leads to decreases in academic performance (Watson, Terry, & Doolittle, 2012). Does the use of smartphones as clickers then exacerbate this?

Traditional Clickers for Instructional Purposes

In 2016, three meta-analyses were conducted to examine the impact of traditional clicker use for non-cognitive and cognitive purposes (Castillo-Manzano, Castro-Nuño, López-Valpuesta, Sanz-Díaz, & Yñiguez, 2016; Chien, Chang, & Chang, 2016; Hunsu et al., 2016). Each of the meta-analyses included only those traditional clicker studies that compared non-clicker classes (i.e., traditional lectures) to clicker-based classes and examined both non-cognitive and cognitive outcomes.

Examination of non-cognitive outcomes found only a small effect on attendance, engagement, interest, and perceptions of instructional quality, but a large effect on self-efficacy, indicating that the use of clickers only increased students' attendance, engagement, interest, and perceptions of quality by a small degree, while the use of clickers increased substantially students' confidence in their ability to successfully complete a relevant quiz.

Examination of cognitive outcomes found only a small-to-medium effect of clicker use on learning performance (i.e., knowledge retention, knowledge transfer, course performance). Relative to instructional impact, clickers are often used in conjunction with a series of review questions to stimulate student thought and obtain a sense of what students are learning. In examining the effect of using this type of questioning strategy, the meta-analyses were equivocal, with some studies finding a small positive impact of using clickers, but some not, and some studies finding a small positive impact of using questions, but some not. In addition to the questioning strategy, Chien et al. (2016) also examined the impact of clicker use when the use was and was not followed up by peer discussion and found a large effect for clicker use followed by peer discussion. Finally, when examining one-session and multi-session use of the clickers, Chien et al. (2016) found a small effect for one-session use and a large effect for multi-session use.

As demonstrated by these three meta-analyses, the impact of clicker use on student cognition is still not clear. Chien et al. (2016) found that clicker use resulted in mostly medium and large effects on student learning, while Hunsu el al. (2016) and Castillo-Manzano et al. (2016) found mostly no and small effects. In addition, the results of the question-based and peer-discussion-based pedagogy results indicate that instructional approach may interact with clicker use, possibly enhancing its impact.

Smartphone-based Clickers for Instructional Purposes

Traditional clicker use has fairly recently evolved into the use of smartphones as input devices. The use of smartphones in classrooms has several advantages over clickers: students already own smartphones and typically bring them to class without prompting, thus do not need to purchase, rent, or carry additional devices; smartphones do not rely on separate infrared or radio-frequency technologies; smartphones allow for a greater number of input question types compared to clickers; and students generally prefer using smartphones to clickers.

While smartphone-based clickers are fairly new, students bringing smartphones to class is not, necessitating a differentiated examination of smartphone use in classes for non-instructional versus instructional purposes. From a non-instructional perspective, Tindell and Bohlander (2012) found that 95% of students bring their smartphones to class, 92% use their smartphones to text message during class, and 10% have even texted during an exam. In addition, a consistent finding is that the more students use smartphones in classes for non-instructional uses, the poorer their class performance (Felisoni & Godoi, 2018). Specifically, several studies have shown a negative correlation between student in-class smartphone activity and grade point average (Bjornsen & Archer, 2015; Duncan, Hoekstra, & Wilcox, 2012; Froese et al., 2012; Harman & Sato, 2011; Junco, 2012b; Lepp, Barkley, & Karpinski, 2015), while Gingerich and Lineweaver (2014) found that students performed significantly worse on content assessments when they texted during a lecture. It should be noted that the conclusion that smartphone use in the classroom for non-instructional purposes leads to lower academic performance is not unique as there is a corpus of research clearly indicating that using laptops during class for non-instructional purposes also leads to lower academic performance, distracting laptop users as well as their peers (Junco, 2012a; Sana, Weston, & Cepeda, 2013).

While the use of smartphones for non-instructional purposes has a generally negative impact on student academic performance, the research on the impact of smartphones for instructional purposes has yet to reach a consensus. Smartphones in classes can serve as high-powered clickers, providing the ability to move beyond multiple-choice questions to higher order questions involving word or numeric responses, matching, sort and rank responses, or clicking on a region of an image responses. Thus, instructors are able to design questions and activities that more actively retain student attention (Beatty et al., 2006) and foster deeper cognition (Voelkel & Bennett, 2014; Wong, 2016). That said, there have been conflicting data regarding whether or not smartphone-based clickers are more effective than traditional clickers (Sun, 2014). Stowell (2015) found little difference between students who used traditional clickers versus smartphone-based clickers; specifically, Stowell found in one class that students who used traditional clickers versus smartphone clickers responded correctly more often to ungraded, in-class, multiple-choice questions (63.9% vs 55.3%, respectively), while in another class there were no such differences (54.7% vs 55.8%, respectively). Stowell also found no impact of smartphone-based clicker use on students' final grades.

Smartphone-based Clickers and Multitasking Distraction

The reasoning for the negative impact of smartphone use for non-instructional purposes on class performance is often multitasking-based distraction, the cognitive distraction that occurs when students attempt to engage in two tasks simultaneously, such as texting while listening to a lecture or searching the web while watching an in-class video (Chen & Yan, 2016). The negative impact of multitasking may be the result of attempting to focus on more than one task at a time or attempting to access long-term memory for more than one response or solution at a time (Watson et al., 2012). That said, the research addressing in-class, non-instructional multitasking is clear, it degrades students' academic performances, specifically, instant messaging in class (Junco, 2012b; Junco & Cotten, 2011), Facebooking in class (Judd, 2014; Wood et al., 2012), texting in class (Ellis, Daniels, & Jauregui, 2010), emailing in class (Wood et al., 2012), and general laptop use in class (Sana et al., 2013) have all led to decreases in students' academic performance. The potential for smartphone-based multitasking, and its concomitant degradation of performance, is clear when one recognizes that all of these tasks—instant messaging, Facebooking, texting, and emailing—may be engaged in from one's smartphone.

Yet, while the research is clear that technology-based multitasking in class impedes learning, the use of smartphone-based clickers as a form of additional classroom technology, which may or may not create a multitasking distraction environment, has not yet been clearly examined. When a smartphone is used to answer course content questions in class, no multitasking distraction occurs as the smartphone is being used for instructional purposes;

however, when a smartphone is used to scan Facebook or Twitter while course content instruction is co-occurring, the smartphone use creates a multitasking distraction situation. This situation results in a basic question: What do students do with their smartphones once an instructional application that involves the use of their smartphones ends? Do students put away their smartphones and concentrate on the course content, or do students engage in instant messaging, Facebooking, texting, or emailing, thus creating a multitasking distraction situation? To date, there are no *in-situ* observations of students' smartphone use following an instructional use of smartphones as clickers. In our study, we investigate the potential for multitasking distraction and persistence of multitasking distraction following an instructional use of smartphones as clickers.

Research Questions

The use of smartphone-based clickers has the potential to create detrimental in-class multitasking distraction events if students continue to use their smartphones for non-instructional uses beyond their original instructional purpose as clickers. The current research is designed to examine three questions: (1) Do students who use smartphone-based clickers for instructional purposes in class continue to use their smartphones for non-instructional purposes after the instructional episode ends? The hypothesis is that students who use smartphone-based clickers for instructional purposes will continue to use their smartphones for non-instructional purposes after the instructional episode ends; (2) To what extent, if any, does this non-instructional use of smartphones persist? The hypothesis is that the non-instructional use of smartphones will persist over the observed period; (3) Do students perceive the use of smartphone-based clickers in class for instructional purposes as a distraction? The hypothesis is that students will not perceive the use of smartphone-based clickers for instructional purposes as a distraction.

Methods

The impact of using smartphone-based clickers in a lecture-based class was examined through two methods: smartphone use in-class observations and a smartphone use survey.

Participants

All participants were enrolled in an upper-level undergraduate food science course at a large university in the southeastern United States, and they received no course credit for participation in this study. Smartphone use in-class observations included 154 observations of students enrolled in the same course with genders, ages,

and ethnicities indeterminate due to the nature of the covert observations. In addition, no effort was made not to observe the same individual on different days. For the smartphone use survey data collection, all students in the course (N = 51) were emailed a request to participate and 28 students completed the non-incentivized, anonymous, and voluntary survey (54.9% response rate). Survey participants included 22 females and 6 males, with a mean age of 21.7 years (SD = 0.96) and reported ethnicities of 27 White/Caucasian and 1 Hispanic.

Procedure

Our study design was preliminarily reviewed by the Virginia Tech Institutional
Review Board (IRB) and deemed exempt from requiring official IRB review and approval.

Smartphone-based clicker. Students were required to use the TopHat™ personal response system, either on their smartphones or on their laptops, as part of class participation. Use of TopHat™ was free for students in this class with the subscription cost covered by the university's Center for Teaching and Learning. TopHat™ allows the course instructor to query students using different question formats, such as multiple-choice questions, word or numeric responses, matching, sort and rank responses, or clicking on a region of an image responses. Student responses could then be stored and shared (or not) with students.

Class design. The use of the smartphone-based clickers was built into the fabric of the T, Th 75-minutes per class food science course during weeks 7-13 of the 15-week academic semester. The course is taught using a mixed approach, with the first 40-45 minutes used for lecture and the last 30-35 minutes used for experiential learning through sensory evaluation of, and group discussion of, foods and beverages relevant to the day's lecture material. Within each of these classes, the smartphone-based clickers were used three times during the lecture portion of the class: once at the beginning of the class using two multiple-choice questions as a course review, once in the middle of the class using two non-multiple-choice questions to encourage deeper thinking, and once at the end of the class using two multiple-choice questions as a daily review. Students answered questions independently and received course credit for participating with the smartphone-based clicker questions: one point for simply answering a question and one point for answering a question correctly. The course instructor explained the correct response to each question once the student-response time period had ended.

Smartphone use in class: observation and distraction assessment. In order to observe students' use of their smartphones during class, up to four graduate student observers entered the 120-seat lecture hall classroom unannounced, along with the enrolled students, in order to

remain covert during the eight separate observation days. The covert observations were used to provide primary data of students' use of their smartphones rather than relying on self-reported student data. Observers were graduate students (four authors of this study) who were similar in age and demographics to the students enrolled in the course, but not familiar to the students. The students were not aware that their smartphone use was being observed, although they had been notified that an educational technology study was being conducted in their classroom during that semester. The observers distributed themselves throughout the class (i.e., front, back, left, right) in positions that provided acceptable sight lines to students with visible smartphones. Each observer identified up to five students to observe during the class who were close enough to the observer for each student's smartphone screen to be visible.

Each student was observed for the first five minutes following the beginning-of-class and middle-of-class smartphone-based clicker questions. Once the instructor "closed" the second of the beginning-of-class questions, the observer would take note of whether or not each student used, or continued to use, their smartphone for non-instructional purposes (e.g., texting, social media) within the first, second, third, fourth, and fifth minutes on a datasheet. This observational pattern was then repeated for the middle-of-class questions, resulting in a total of ten separate observation occasions per student per class. All observers were trained to use the data collection techniques by enacting the observation protocol during two classes prior to the beginning of data collection.

Multitasking distraction was assessed using a binomial test comparing the proportion of students persisting in using their smartphones within the first, second, third, forth, and fifth minutes beyond the conclusion of the instructional episode to the baseline value. To obtain the baseline of student smartphone use in class, a parallel class – same course and same instructor – was used. Two observers gathered data from 20 students across two class periods by sitting in the class, observing students' smartphone use, and recording whether or not students were using their smartphones for non-instructional purposes (e.g., texting, making a call, surfing the web). Smartphone use was checked every five minutes to see if the students were on their phones at that instant of the class for the first 40 minutes, resulting in eight observations per class for baseline determination.

Measures

The researcher-constructed smartphone use survey was administered online during week 13 of the 15-week semester. The survey consisted of three 6-point Likert-scaled questions (1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Disagree, 4 = Somewhat Agree, 5 = Agree, 6 = Strongly Agree) focused on

perceptions of the smartphone-based clicker use and distraction (i.e., Using TopHat^{TM} distracted me from class; Using TopHat^{TM} decreased my focus on class; Using TopHat^{TM} diverted my attention from class). Student demographics (i.e., age, gender identification, ethnicity, and major) were also collected. A reliability analysis within the current study yielded a Cronbach's alpha of .88.

Results

Pertaining to RQ1, "Do students who use smartphone-based clickers for instructional purposes in class continue to use their smartphones for non-instructional purposes after the instructional episode ends, resulting in multitasking distraction?," we assessed the proportion of students using smartphones beyond the instructional episode. The student baseline of non-instructional use of smartphones was 1.8%; that is, students were observed engaging with their smartphones for non-instructional purposes 1.8% of the time during baseline conditions. A series of five binomial tests indicated that the proportion of students using their smartphones 1, 2, 3, 4, and 5 minutes beyond the conclusion of the instructional episode was higher than the baseline criterion ($p < .001$ for all five tests; see Table 1). These results indicate that a statistically significant proportion of students continued use of their smartphones for non-instructional purposes beyond the instructional episode, thus putting them into a multitasking distraction situation.

To address RQ2, "To what extent, if any, did this non-instructional use of smartphones persist?," a Cochran's Q test was calculated in order to determine if there were any differences between means across time. There was a statistically significant difference in the proportion of students using their smartphones across minutes 1, 2, 3, 4, and 5, $X^2(4) = 28.408$, Cohen's $w = 0.64$, $p < .01$. Following this significant result, a series of McNemar tests, with a Bonferroni correction for four comparisons, were used post hoc to locate the significant differences between pairwise means. Only four comparisons were made in order to determine if there was a general decline in the proportion of students using their smartphone from minute 1 through minute 5 (i.e., comparisons between minutes 1 and 2, minutes 2 and 3, minutes 3 and 4, and minutes 4 and 5). The results of these comparisons indicated that smartphone use at minutes 1 and 2 were statistically similar, that smartphone use declined statistically significantly between minutes 2 and 3, and that smartphone use remained statistically unchanged from minutes 3 through 5 (see Table 2). In addition, using Cohen's w as a measure of effect size indicates that even the significant decrease (effect) in the proportion of students using their smartphones between minutes 2 and 3 was small. These results indicate that students' use of smartphones for non-instructional purposes persisted throughout the first five minutes following the conclusion of the instructional use of the smartphones.

Table 1
Comparison of Proportion of Students Engaging in Smartphone use Beyond the Instructional Episode to Baseline

| Minute | N | Smartphone Use | | 'Yes' Proportion[1] | Baseline Proportion[1] | *p* |
		No	Yes			
1	154	89	65	.42	.018	< .001
2	154	95	59	.38	.018	< .001
3	154	110	44	.29	.018	< .001
4	154	118	36	.23	.018	< .001
5	154	111	43	.28	.018	< .001

[1] The number of observations was $n = 20$ for baseline group, and $n = 154$ for the group who used TopHat

Table 2
McNemar Pairwise Comparison Tests of Proportions in Smartphone use Beyond the Instructional Episode (w/Bonferroni correction)

Minutes	Proportions[a]	Comparisons	Chi Square	Cohen's w[b]	*p*
1	.42[b]				
2	.38[b]	Minutes 1 and 2	.781	.10	.377
3	.29[c]	Minutes 2 and 3	6.754	.30	.009*
4	.23[c]	Minutes 3 and 4	1.225	.13	.268
5	.28[c]	Minutes 4 and 5	1.161	.12	.281

* = statistically signification at $\alpha \leq .0125$
[a] Means with similar superscripts are statistically similar, means with dissimilar superscripts are statistically different ($p < .0125$)
[b] Cohen's w effect size is defined as small = 0.2, medium = 0.5, and large = 0.8.

Figure 1
Survey of students' perceptions of distraction due to the use of smartphone-based clickers in class for instructional purposes.
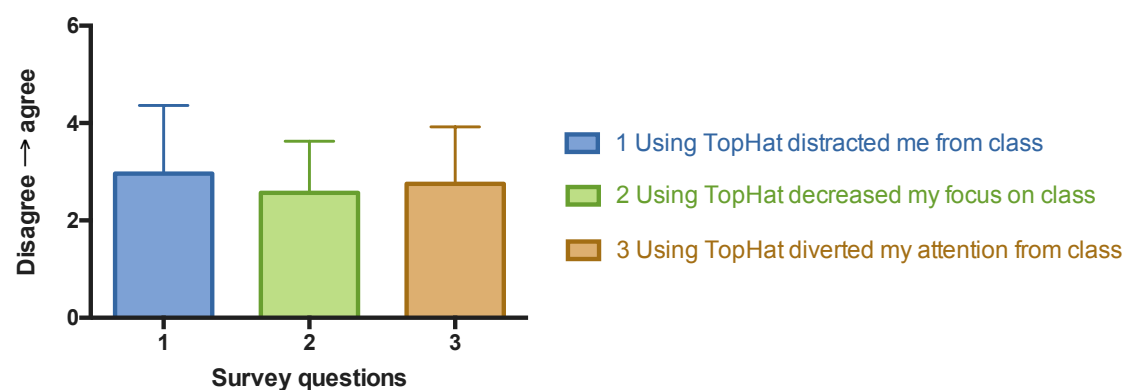
The survey consisted of three 6-point Likert-scaled questions (1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Disagree, 4 = Somewhat Agree, 5 = Agree, 6 = Strongly Agree).

Overall, these results indicate that when students use smartphone-based clickers in class, the rate of smartphone use for non-instructional purposes (multitasking distraction) increases and persists beyond the instructional use for at least 5 minutes.

Finally, for RQ3, "Do students perceive the use of smartphone-based clickers in class for instructional purposes as a distraction?," a survey was conducted. Students disagreed (2) to somewhat disagreed (3) that the use of the smartphone-based clicker was distracting, decreased their focus, or divided their attention (Figure 1). As a check, the three questions were assessed to make sure they constituted a single "multitasking distraction" factor. All criteria validating the use of exploratory factor analysis were satisfied: adequate sample size for a one-variable test (N = 28; see MacCallum, Widaman, Zhang, & Hong; 1999; Preacher & MacCallum, 2002), Kaiser-Meyer-Olkin (KMO) sampling adequacy of .71, and Bartlett's test of

sphericity was significant, χ^2 (3) = 47.43, p < .01; thus, an exploratory factor analysis was conducted using the Maximum Likelihood extraction method with the Promax with Kaiser Normalization rotation method (κ = 4). The number of factors was determined through a screen test, resulting in one factor explaining 82.5% of the variance. The standardized factor loadings for the three items were .884, .900, and .940, respectively.

As a single factor, the three questions were combined into a 6-point Likert-scaled composite score. The composite "multitasking distraction" score, as a mean across all three questions and 28 participants, was 2.76 (SD = 1.10), indicating that students disagree to somewhat disagree that engagement in the smartphone-based clicker was a distraction.

Discussion

Clickers have been used extensively in classrooms to foster student attendance, engagement, interaction, and learning. Recently, however, the use of handheld clickers has been joined by the use of smartphone-based clickers. This use of smartphones in the classroom raises issues regarding the potential for smartphones to foster multitasking distraction, which has been demonstrated to have a potentially negative impact on students' learning (see Sana et al., 2013) .The current research examined students' use of smartphones for non-instructional purposes following their use for instructional purposes and demonstrated that 42% of students begin to use their smartphones for non-instructional purposes immediately following the instructional episode and that 28% of students persisted in using their smartphones for non-instructional purposes five minutes after the instructional episode ended. This continued use of the smartphones for non-instructional purposes created a multitasking distraction situation as regular class instruction recommended immediately following the smartphone-based clicker activity.

This persistence of smartphone usage may be partially the result of students not perceiving the use of their smartphones as problematic. When surveyed as part of this research, students *disagreed* to *somewhat disagreed* that the use of the smartphone-based clickers was distracting, decreased their focus, or divided their attention. This perception aligns with findings from Sanbonmatsu, Strayer, Medeiros-Ward, and Watson (2013), who determined that within a sample of 277 undergraduate students, 70% of the students overestimated their ability to multitask. Similarly, Stowell (2015) found that in a sample of 141 undergraduate students, 58.2% of students who used a smartphone-based clicker in class indicated that they "never" or "rarely" were "distracted by other things on the device" (p. 332). These findings address students' multitasking self-efficacy: their belief in their ability to successfully multitask, in this case, during the use of

technology. Of importance is the finding that when students believe they can accomplish a specific task (e.g., technology-based multitasking), they are more likely to engage in that task (Bandura, 1997; Schunk, 1989). Thus, it is likely that students who believe they can successfully multitask with their smartphones during a lecture are going to engage in using their smartphones more often in class than students who do not. That said, Brooks (2015) and Wu (2017) found that while students may have high beliefs in their abilities to engage in technology-focused multitasking, the level of their beliefs does not positively impact their ability to actually multitask. Thus, there is evidence of a discord between students' perceptions of their abilities to multitask (self-efficacy) and their actual abilities to multitask (performance), which may lead students to engage in multitasking, even when inappropriate or detrimental.

Students' perceptions that smartphone use in class is not distracting may be impacted by their smartphone "checking habits" (Oulasvirta, Rattenbury, Ma, & Raita, 2012), the propensity to quickly scan the smartphone's home screen or a single application (e.g., texts, Facebook, email) for new dynamic content. This checking typically only lasts for a few seconds, although it may lead to engaging more fully in an application. While the persistent use of smartphones following their instructional use as clickers may be the result of checking habits, it may also be indicative of media multitasking, the simultaneous use of multiple forms of media (e.g., cell phone applications, PowerPoint slides, laptop applications). Continual use of multiple forms of media, or heavy media multitasking (HMM), as opposed to light media multitasking (LMM), is related to higher levels of distractibility, lower levels of attentional control, and lower levels of executive control (Loh, Tan, & Lim, 2016; Ophir, Nass, & Wagner, 2009). In addition, these findings have led to the conclusion that HMMs employ breadth-biased attentional control, where HMMs spread their attention across a series of information sources (e.g., laptop Facebook, cell phone Twitter, laptop of student in front row, teacher's PowerPoint slide), attending to each information source in only a shallow or superficial manner (Lin, 2009; Loh et al., 2016). It may be that HMM students continue to use their smartphones following their instructional use due to their attentional breadth bias and that they persist in using their smartphones due to an inability to block out the dynamic distractions from the smartphone (Loh et al., 2016; Ophir et al., 2009; Sanbonmatsu et al., 2013). The end result of this media multitasking is poorer classroom learning (Jacobsen & Forste, 2011; Loh et al., 2016; Wood et al., 2012; Wu, 2017).

Taken together, these results indicate that there is potential for multi-tasking distraction following the instructional use of smartphone-based clickers.

Although smartphone-based clickers can facilitate engaged and student-centered learning in lectures (Ma, Steger, Doolittle, & Stewart, 2018), instructors making use of this technology should be aware of the potential for multitasking distraction and take measures to limit this distraction, even if students self-report that the instructional use of smartphones is not distracting. These suggestions, however, should be balanced against the study's limitations, mainly the use of a single context – class, instructor, institution type, instructional approach – resulting in a small observation sample and relatively small sample sizes. In addition, while students' persistence in using their smartphones was observed, the negative impact of such multitasking on their learning is currently theoretical. Follow-up studies of smartphone use persistence are necessary to examine the direct impact of such multitasking on learning.

The ease of use and positive effect of smartphones as clickers is worthy, but it is in-class smartphone use, in general, which is negatively correlated with academic performance. However, the research on the positive impact of smartphones as clickers for learning is currently underdeveloped. The current research provides a first glimpse at students' use of smartphone-based clickers after their use for instructional purposes ends. The observations indicated that students engage in, and persist in, their use of the smartphones for non-instructional purposes, leading to the creation of multitasking distraction situations. These types of multitasking distractions have been demonstrated to reduce learning, a finding that will need to be confirmed in future research. These results indicate that it may be beneficial for instructors choosing to use smartphone-based clickers to design and implement instruction with the foreknowledge that use of the smartphones requires direct attention to avoid or reduce the likelihood of creating multitasking environments.

References

Anderson, L. S., Healy, A. F., Kole, J. A., & Bourne, L. E. (2013). The clicker technique: Cultivating efficient teaching and successful learning. *Applied Cognitive Psychology, 27*(2), 222-234. doi:doi:10.1002/acp.2899

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Macmillan.

Banks, D. A. (2006). *Audience response systems in higher education: Applications and cases*. Hershey, PA: IGI Global.

Beatty, I. D., Gerace, W. J., Leonard, W. J., & Dufresne, R. J. (2006). Designing effective questions for classroom response system teaching. *American Journal of Physics, 74*(1), 31-39. doi:10.1119/1.2121753

Bjornsen, C. A., & Archer, K. J. (2015). Relations between college students' cell phone use during class and grades. *Scholarship of Teaching and Learning in Psychology, 1*(4), 326.

Brooks, S. (2015). Does personal social media usage affect efficiency and well-being? *Computers in Human Behavior, 46*, 26-37.

Caldwell, J. E. (2007). Clickers in the large classroom: Current research and best-practice tips. *CBE—Life Sciences Education, 6*(1), 9-20.

Castillo-Manzano, J. I., Castro-Nuño, M., López-Valpuesta, L., Sanz-Díaz, M. T., & Yñiguez, R. (2016). Measuring the effect of ARS on academic performance: A global meta-analysis. *Computers & Education, 96*, 109-121. doi:10.1016/j.compedu.2016.02.007

Chen, Q., & Yan, Z. (2016). Does multitasking with mobile phones affect learning? A review. *Computers in Human Behavior, 54*, 34-42.

Chien, Y. T., Chang, Y. H., & Chang, C. Y. (2016). Do we click in the right way? A meta-analytic review of clicker-integrated instruction. *Educational Research Review, 17*, 1-18. doi:10.1016/j.edurev.2015.10.003

Duncan, D. K., Hoekstra, A. R., & Wilcox, B. R. (2012). Digital devices, distraction, and student performance: Does in-class cell phone use reduce learning? *Astronomy Education Review, 11*(1).

Felisoni, D. D., & Godoi, A. S. (2018). Cell phone usage and academic performance: An experiment. *Computers & Education, 117*, 175-187.

Filer, D. (2010). Everyone's answering: Using technology to increase classroom participation. *Nursing education perspectives, 31*(4), 247-250.

Froese, A. D., Carpenter, C. N., Inman, D. A., Schooley, J. R., Barnes, R. B., Brecht, P. W., & Chacon, J. D. (2012). Effects of classroom cell phone use on expected and actual learning. *College Student Journal, 46*(2), 323-332.

Gingerich, A. C., & Lineweaver, T. T. (2014). OMG! Texting in class = U Fail :(Empirical evidence that text messaging during class disrupts comprehension. *Teaching of Psychology, 41*(1), 44-51. doi:10.1177/0098628313514177

Harman, B. A., & Sato, T. (2011). Cell phone use and gradepoint average among undergraduate university students. *College Student Journal, 45*(3), 544-549.

Hunsu, N. J., Adesope, O., & Bayly, D. J. (2016). A meta-analysis of the effects of audience response systems (clicker-based technologies) on cognition and affect. *Computers & Education, 94*, 102-119.

Jacobsen, W. C., & Forste, R. (2011). The wired generation: Academic and social outcomes of electronic media use among university students.

Cyberpsychology, Behavior, and Social Networking, 14(5), 275-280.

Judd, T. (2014). Making sense of multitasking: The role of Facebook. *Computers & Education, 70*, 194-202.

Junco, R. (2012a). In-class multitasking and academic performance. *Computers in Human Behavior, 28*(6), 2236-2243. doi:10.1016/j.chb.2012.06.031

Junco, R. (2012b). The relationship between frequency of Facebook use, participation in Facebook activities, and student engagement. *Computers & Education, 58*(1), 162-171.

Junco, R., & Cotten, S. R. (2011). Perceived academic effects of instant messaging use. *Computers & Education, 56*(2), 370-378.

Lepp, A., Barkley, J. E., & Karpinski, A. C. (2015). The relationship between cell phone use and academic performance in a sample of U.S. college students. *SAGE Open, 5*(1). doi:10.1177/2158244015573169

Lin, L. (2009). Breadth-biased versus focused cognitive control in media multitasking behaviors. *Proceedings of the National Academy of Sciences, 106*(37), 15521-15522.

Loh, K. K., Tan, B. Z. H., & Lim, S. W. H. (2016). Media multitasking predicts video-recorded lecture learning performance through mind wandering tendencies. *Computers in Human Behavior, 63*, 943-947.

Ma, S., Steger, D. G., Doolittle P. E., & Stewart, A. C. (2018) Improved academic performance and student perceptions of learning through use of a cell phone-based personal response system. *Journal of Food Science Education, 17*(1), 27-32.

MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods, 4*(1), 84-99.

Mayer, R. E., & Chandler, P. (2001). When learning is just a click away: Does simple user interaction foster deeper understanding of multimedia messages? *Journal of Educational Psychology, 93*(2), 390.

Mostyn, A., Meade, O., & Lymn, J. S. (2012). Using Audience Response Technology to provide formative feedback on pharmacology performance for non-medical prescribing students-a preliminary evaluation. *BMC Medical Education, 12*(1), 113.

Ophir, E., Nass, C., & Wagner, A. D. (2009). Cognitive control in media multitaskers. *Proceedings of the National Academy of Sciences, 106*(37), 15583-15587.

Oulasvirta, A., Rattenbury, T., Ma, L., & Raita, E. (2012). Habits make smartphone use more pervasive. *Personal and Ubiquitous Computing, 16*(1), 105-114. doi:10.1007/s00779-011-0412-2

Preacher, K. J., & MacCallum, R. C. (2002). Exploratory factor analysis in behavior genetics research: Factor recovery with small sample sizes. *Behavior Genetics,32*(2):153-61.

Sana, F., Weston, T., & Cepeda, N. J. (2013). Laptop multitasking hinders classroom learning for both users and nearby peers. *Computers & Education, 62*, 24-31.

Sanbonmatsu, D. M., Strayer, D. L., Medeiros-Ward, N., & Watson, J. M. (2013). Who multi-tasks and why? Multi-tasking ability, perceived multi-tasking ability, impulsivity, and sensation seeking. *PLoS One, 8*(1), 1-8. doi:10.1371/journal.pone.0054402

Schunk, D. H. (1989). Self-efficacy and achievement behaviors. *Educational Psychology Review, 1*(3), 173-208.

Shapiro, A. M., & Gordon, L. T. (2012). A controlled study of clicker-assisted memory enhancement in college classrooms. *Applied Cognitive Psychology, 26*(4), 635-643.

Stowell, J. R. (2015). Use of clickers vs. mobile devices for classroom polling. *Computers & Education, 82*, 329-334.

Sun, J. C. Y. (2014). Influence of polling technologies on student engagement: An analysis of student motivation, academic performance, and brainwave data. *Computers & Education, 72*, 80-89. doi:10.1016/j.compedu.2013.10.010

Tindell, D. R., & Bohlander, R. W. (2012). The use and abuse of cell phones and text messaging in the classroom: A survey of college students. *College Teaching, 60*(1), 1-9. doi:10.1080/87567555.2011.604802

Voelkel, S., & Bennett, D. (2014). New uses for a familiar technology: introducing mobile phone polling in large classes. *Innovations in Education & Teaching International, 51*(1), 46-58. doi:10.1080/14703297.2013.770267

Watson, C. E., Terry, K. P., & Doolittle, P. E. (2012). Please read while texting and driving. In J. E. Groccia & L. Cruz (Eds.), *To improve the academy, volume 31* (pp. 295-309). New York: John Wiley and Sons.

Wong, A. (2016). Student perception on a student response system formed by combining mobile phone and a polling website. *International Journal of Education & Development using Information & Communication Technology, 12*(1), 144-153.

Wood, E., Zivcakova, L., Gentile, P., Archer, K., De Pasquale, D., & Nosko, A. (2012). Examining the impact of off-task multi-tasking with technology on real-time classroom learning. *Computers & Education, 58*(1), 365-374.

Wu, J. Y. (2017). The indirect relationship of media multitasking self-efficacy on learning performance within the personal learning environment: Implications from the mechanism of perceived

attention problems and self-regulation strategies. *Computers & Education, 106*, 56-72.

Ellis, Y., Daniels, B. W., & Jauregui, A. (2010). The effect of multitasking on the grade performance of business students. *Research in Higher Education Journal, 8*.

———————————————————

SIHUI MA is a Ph.D. student in the Department of Food Science and Technology and Graduate Teaching Scholar in the College of Agriculture and Life Sciences at Virginia Tech. Her research interests include cider production strategies, analytical method development for bioactive compounds, and food science education.

DANIEL G. STEGER is a graduate student in the Department of Agriculture, Leadership, and Community Education at Virginia Tech, Blacksburg, Virginia, United States. His interests include Science, Technology Engineering and Mathematics (STEM) education methodologies, inclusive teaching practices, and the practical application of lecture technologies.

DR. PETER E. DOOLITTLE is the Director of the School of Education at Virginia Tech and conducts research on the role of working memory in multimedia learning environments.

DR. ANDREW H. LEE is a recent Ph.D. graduate from the Virginia Tech Department of Food Science & Technology.

DR. LAURA E. GRIFFIN is a recent Ph.D. graduates also from the Virginia Tech Department of Food Science & Technology.

DR. AMANDA STEWART is an Assistant Professor in the Department of Food Science & Technology at Virginia Tech. Her interests focus on higher education in agriculture and the science of wine and cider production.

Acknowledgements

Examining Higher Education Faculty Use of Current Digital Technologies: Importance, Competence, and Motivation

Florence Martin, Drew Polly, Shanna Coles, and Chuang Wang
University of North Carolina at Charlotte

Higher education faculty use of current digital technologies based on their perception of importance, competence, and motivation is examined in this study. Two hundred and forty-seven faculty in the United States responded to an online survey on current digital technology use. Descriptive statistics and categorical means for the digital technologies are provided. Faculty rated the use of learning management system as the highest in terms of importance and competence. They rated social media as the lowest in terms of importance and adaptive learning in terms of competence. For motivation to integrate digital technology, faculty rated benefit to learning as the most influential factor and reappointment, promotion, and tenure as the least influential factor. Faculty characteristics such as gender, teaching level, primary teaching method, faculty rank, and teaching experience and its association with faculty beliefs of importance, competence and motivation on using digital technologies are also examined in this study.

As access to technology continues to increase in post-secondary institutions, there is increased emphasis that faculty not only use the technologies they have access to, but that they use them in ways that enhance teaching and learning (New Media Consortium [NMC], 2017). Faculty in post-secondary institutions are now teaching students who are more well versed and adept at using technology than before (Conole, de Laat, Dillon, & Darby, 2008). Students expect their learning to be enhanced by digital technologies, including the use of learning management systems and content-specific technologies (Conole et al., 2008; Young, 2012). Even when faculty are interested and willing to integrate technology, they still must be critical consumers of technology. Studies have found that higher education faculty who attempted to integrate digital technologies in their teaching did so with little rationale, thought about learning theory, or awareness of how technology can support teaching and learning of their content (Price & Kirkwood, 2014).

Researchers have examined faculty adoption of technology due to its perceived ease of use and perceived usability (Ahmad, Madarsha, Zainuddin, Ismail, & Nordin, 2010; Buchanan, Sainter & Saunders, 2013; Cheung & Vogel, 2013; Schoonenboom, 2014). Researchers have also focused on adoption of specific types of technologies over the last two decades. Birch and Burnett (2009) examined adoption of elearning environments. Ajjan and Hartshone (2008) investigated faculty decisions to adopt Web 2.0 technologies. Martin and Parker (2014) examined the adoption of synchronous online technologies. Fathema, Shannon, and Ross (2015) examined faculty use of a Learning Management System. Use of mobile learning technologies in higher education have been researched extensively (Pimmer, Mateescu, & Gröhbiel, 2016). Belikov and Bodily (2016) examined incentives and barriers for open educational resources adoption.

Though studies have been conducted on specific technologies, limited studies have examined adoption comparing a variety of digital technologies by faculty in higher education. Watty, McKay and Ngo (2016) reviewed adoption of six new technologies (intelligent tutoring system, social media technologies, click technology, video learning resources, flipped classroom technologies and instant web response tool). From their interviews they found that faculty resistance was the key barrier to technology adoption. It is essential to examine faculty use of digital technologies periodically to identify faculty perception on adoption and use of the current digital technologies in higher education.

Framework for Adoption and Integration of Current Digital Technologies

Building on the existing readiness framework (Rollnick, Mason and Butler, 2010), the authors of this article have adapted it to create a framework (see Figure 1) with three components—importance, competence and motivation—that are considered essential in adopting and integrating digital technologies.

It is essential to examine faculty attitudes regarding the importance of various digital technologies in higher education. Students are likely to experience more positive learning outcomes when their faculty have positive attitudes towards digital technologies and online course delivery (Volery, 2001). Instructor ability is conceptualized as the faculty's beliefs or perceptions of their own competence at teaching as related to use of instructional strategies and teaching effectiveness (Lee & Tsai, 2010).

Post-secondary faculty largely use technology in their teaching to solve existing problems or enhance aspects of the teaching process, such as increasing collaboration, student motivation, opportunities for critical thinking, and access to resources (Stedman, Roberts, Harder, Myers, & Thoron, 2011). A survey

Figure 1
Higher education faculty integration of digital technologies
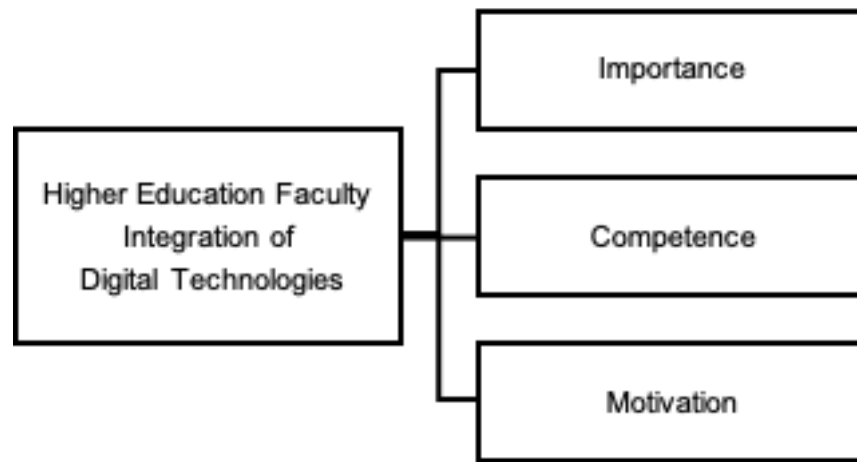
study of faculty at multiple universities found that digital technologies were used largely to communicate with students and to support diverse ways of learning (Smith, 2014). Few faculty in that study reported that a benefit of using technology was to promote active learning, provide feedback, or promote collaboration between students. Fleagle (2012) found that post-secondary faculty could not discuss or justify their reasons for using or not using technology without discussing the pedagogical reasons for their decisions. Participants in the study continuously referred to examples where technology was either used or explicitly not used for pedagogical reasons. Reid (2012, 2017) advised universities to step back and consider theoretical approaches to adoption, such as Rogers' (2003) diffusion of innovations model, as well as research-based approaches to increasing the likelihood that faculty will increase their use, and the effectiveness of their use, of digital technologies. Brown (2016) conducted a systematic review of the literature on faculty members' adoption and use of online tools for face-to-face instruction and found six factors that influenced faculty adoption of technology: the faculty member's interactions with technology, academic workload, institutional environment, interactions with students, attitudes and beliefs about teaching, and opportunities for professional development.

Current Digital Technologies Used in Higher Education

In this section we synthesize the literature on digital technologies that are frequently used in higher education and were a focal part of this research study.

Learning management systems. Learning management systems (LMSs) have become universal at post-secondary institutions as tools to support the dissemination of resources and materials, submission and grading of assignments, and collaboration between students (Dahlstrom, Brooks, & Bischel, 2014; Vovides, Sanchez-Alonso, Mitropoulou, & Nickmans, 2007). Based on a large-scale 2014 Educause study, 99% of post-secondary institutions have an LMS in place, and nearly 85% of faculty use it to some extent (Dahlstrom et al., 2014). A recent study at a large university found that over time and with varied modes of support (face-to-face workshops, webinars, recorded screen casts, and printed resources), use of the LMS increased (Rhode, Richter, Gowen, Miller, & Wills, 2017). Research has also found that instructors struggle with the initial adoption of an LMS based on how well it aligns to previous tools that they used (West, Waddoups, & Graham, 2007).

Collaboration tools. In higher education, increased access to devices has led to increased use of collaborative tools, such as Google programs (Docs, Sheets, Drive, Classroom), wikis, discussion forums, and other shared collaborative spaces. Stantchev, Colomo-Palacios, Soto-Acosta, & Misra (2014) in their study found that cloud computing tools, such as Google Drive and Dropbox for sharing resources, were rated with a higher ease of use than the LMS. Though it has a higher perceived eased of use, it has a higher security policy about storing sensitive information. Biasutti (2017) found that wikis and forums were both promising tools that supported students' learning in post-secondary courses, and that while the two tools both provided collaboration, they

each had their nuanced benefits, and both categories of tools were useful in courses. Social media and online meeting tools are also considered collaborative tools. Manca and Ranieri (2016) examined potentials and obstacles of using social media (e.g., Twitter, Facebook, LinkedIn, ResearchGate, and Academia.edu) for teaching in higher education. They found that social media use in higher education teaching was still restricted due to cultural resistance, pedagogical issues, or institutional constraints. Veletsianos (2012) examined higher education scholars' participation on Twitter and found that they used twitter to share information and resources related to professional practice and their classrooms. Online synchronous meeting tools such as Webex and Zoom are used for synchronous collaboration. Martin and Parker (2014) found institutional resource availability, increased social presence, enhanced student learning, and the availability of technology as the major reasons faculty use synchronous tools in their teaching.

Audio/video tools. Tools to produce audio and video recordings have become more common in post-secondary education courses. One type of video creation that has become more popular is screencasting. Screencasts are ways to play back digitally recorded content that typically includes audio and video (Udell, 2005). Research on screencasts found that faculty who taught online reported benefits in creating screencasts to communicate content to students (Sugar, Brown, & Luterbach, 2010). They found that screencasts tended to have similar structures, such as audio narration of content and visuals to enhance the screencast. A study of faculty and students found that both groups preferred to learn from video tutorials over text-based tutorials, but when asked which ones they would teach with, they had mixed opinions with both groups making an argument for the benefit of text-only tutorials (Lantz, Insua, Armstrong, Dror, & Wood, 2018). The finding that individuals prefer to learn from video than text aligns with prior work that found that post-secondary instructors sought to integrate video into post-secondary courses (Burke, Snyder, & Rager, 2009).

Technology trends.

Mobile learning. Fu and Hwang (2018) noted the exponential growth in mobile learning (m-learning) innovations and studies since 2007. Their synthesis of the literature noted that most mobile learning studies found association with collaborative and constructivist-oriented technologies. Research found that the use of mobile technologies greatly increased students' access to authentic learning opportunities and collaboration with classmates (Ryu & Parsons, 2012). Still, a synthesis of empirical studies on mobile learning found that many post-secondary faculty tried to use mobile technologies

in teacher-directed manners that inhibited discovery and collaboration (Pimmer et al., 2016). One barrier identified in the synthesis was a lack of professional development and support related to how to teach with the technology (Pimmer et al., 2016). Some research on mobile learning suggested that if faculty are not adept at using the technology themselves, then they are less likely to teach with the technology (Fu & Wang, 2018).

Adaptive learning. Many post-secondary institutions have started to purchase and incorporate adaptive learning systems, which are digital programs that adapt learning modules, instruction, and assessments based on learners' performances. Research on effective strategies used in tutoring and instruction were used to inform the design of these adaptive learning programs (Lehman, D'Mello, Cade, Person, 2012). Studies have found that adaptive learning systems are as effective as or more effective than face-to-face individual tutoring sessions (VanLehn, 2011). With adaptive learning the generative approach of programs to make data-based decisions on which instructional segments and experiences to provide learners has led to its rapid adoption and popularity in higher education settings (New Media Consortium, 2017). From a literature base stemming from data analytics, adaptive learning continues to push boundaries in its use of data to support learners' experiences (Huda et al., 2019).

Gaming and simulations. Gamification—or turning learning experiences into games—is starting to occur more frequently in higher education. Those who advocate for the gamificiation of content contend that games naturally increase the motivation to learn content and to succeed (Herro, King, Jacques, & Wersinger, 2016; Kapp, 2012). A synthesis of studies on gamification in high school and post-secondary settings found that gamification increases student motivation to learn new content (Lister, 2015). There is mixed research at this point about how well gamification impacts learning (Barata, Gama, Jorge, Gonçalves, 2013; Lister, 2015). At the post-secondary level, faculty have expressed concerns about integrating games into courses due to the informal connotations of gamification (Alsawaier, 2018; Barata et al., 2013). Howard, Englert, Kameg and Perozzi (2011) examined the integration of simulation in the nursing undergraduate curriculum. Faculty found the use of simulation to be beneficial though there were several technology-based challenges. Simulation use is more prevalent among nursing and medical education programs (Ganley & Linnard-Palmer, 2012; Kirkman, 2013).

Purpose of the Study

While efforts to support faculty members' adoption of technology-rich pedagogies continue to be examined, researchers have found promise that focused initiatives can support faculty's adoption of technology-rich pedagogies (Englund, Oloffson & Price, 2017). However, prior to identifying how to support faculty,

there is a need for institutions to examine the current state of digital technologies used by faculty, as well as their perceived importance and competence in teaching with digital technologies. This data can then inform the design and implementation of future work.

This study is framed around the following research questions:

1. What digital technologies do faculty consider important to their teaching?

2. What digital technologies do faculty consider to be competent in?
3. What motivational factors influence faculty use of digital technologies?
4. How do the demographical factors (gender, teaching level, primary teaching method, faculty rank, and teaching experience) associate with faculty belief of importance, and competence on using digital technologies?

Table 1
Faculty Demographic Characteristics (n = 247)

Variables		Frequency
Age		Mean= 48.31
		SD= 12.24
Gender	Female	147 (60.2%)
	Male	90 (36.9%)
Rank	Full Professor	42 (17.4%)
	Associate Professor	45 (18.7%)
	Assistant Professor	46 (19.1%)
	Full time Lecturer	69 (28.6%)
	Part time Lecturer	39 (16.2%)
Primary Teaching Method	Asynchronous	111 (49.8%)
	Synchronous	15 (6.7%)
	Hybrid/ Blended	41 (18.4%)
	Face-to-Face	56 (25.1%)
Level	Undergraduate	136 (56.9%)
	Masters	73 (30.5%)
	Doctoral	30 (12.6%)
Years Teaching	0-5 Years	42 (17.1%)
	6-10 Years	49 (20.0%)
	11-15 Years	45 (18.4%)
	More than 15	109 (44.5%)
Academic Discipline	Humanities	68 (29.4%)
	Social sciences	119 (51.5%)
	Computing and natural sciences	22 (9.5%)
	Health science	22 (9.5%)
Taught Hybrid	Yes	157 (64.3%)
	No	87 (35.2%)
Taught Online	Yes	157 (64.3%)
	No	87 (35.2%)

Table 2
Descriptive Statistics on Importance and Competence of Using Digital Technologies

Digital Technologies	Example Technologies	Importance M (SD)	Competence M (SD)
Learning Management Tools	Canvas, Blackboard	3.71 (0.66)	3.60 (0.61)
Collaboration through Cloud Computing	Dropbox, Google Drive	3.31 (0.91)	3.52 (0.75)
Social Media	LinkedIn, Facebook	1.80 (0.99)	3.19 (0.96)
Online Meeting Tools	Webex, Zoom	2.75 (1.18)	3.04 (1.03)
Collaborative		2.62 (0.77)	3.25 (0.75)
Video Creation	Camtasia, Kaltura	2.75 (1.11)	2.71 (1.09)
Supplemental Video	Youtube, Vimeo	3.15 (0.91)	3.25 (0.91)
Podcasts	Audacity	1.89 (0.93)	2.55 (1.07)
Audio Visual Tools		2.60 (0.76)	2.84 (0.85)
Mobile Applications		2.12 (1.06)	2.82 (1.03)
Games and Simulation		2.07 (1.07)	2.37 (1.06)
Adaptive Learning		2.20 (1.07)	2.19 (1.08)
Technology Trends		2.13 (0.90)	2.46 (0.88)

Methods

Participants

The survey was distributed through the SurveyShare electronic survey tool to three distribution lists in the United States: Association for Educational Technology Communications (1984 members), AERA Online Teaching and Learning Special Interest Group (250 members), and southeastern public university faculty (529 members) in the United States. A total of 247 faculty (9% of those invited) responded to the survey. Table 1 presents a description of the participants, including age, gender, rank, delivery method, level, years teaching, and years teaching online.

Instrument

The digital technologies survey was created in consultation with educational technology experts in higher education. The Director of Distance Education, the Director of the Center for Teaching and Learning, and the Director of Audio Visual Integration and Support for Learning consultants at this southeastern university were consulted during the creation of the survey. Content validity was checked with two external experts in instructional technology.

In addition to demographic information, the instrument consists of six constructs: importance, competence, motivational factors, interest in receiving information, interest in receiving training, and type of professional development support. In this article, results from only three of the constructs (importance, competence, and motivational factors) is described. The same list of digital technology items were used for each construct, and the respondents were asked to rate how important each digital technology was for their teaching, as well as how competent they are in using the digital technologies. The digital technologies fall into four categories: Learning Management System (1 item), Collaborative Tools (3 items), Audio-Visual Tools (3 items), and Technology Trends (3 items). In the section for importance, respondents were asked to rate the importance of the digital technologies on a 4-point Likert scale from 4=Very Important, 3=Moderately Important, 2=A Little Important, and 1=Not Important. In the section for competence, respondents were asked to rate their competence to use the digital technologies on a 4-point Likert scale from 4=Very Competent, 3=Moderately Competent, 2=A little Competent and 1=Not Competent. In the section for motivational factors, respondents were asked to rate the factors influencing their use of digital technologies on a 4-

Table 3
Descriptive Statistics on Motivational Factors

Motivational Factors	Influence M (SD)
Benefit to Learning	3.72 (0.589)
Time to Design	3.53 (0.65)
Technology Skills	3.16 (0.92)
Support from Administration	2.51 (1.08)
Recognition	2.72 (1.15)
Workload Policy	2.58 (1.18)
Reappointment, Promotion and Tenure	2.36 (1.25)

point Likert scale from 4= Very Influential, 3= Moderately Influential, 2= A little Influential, and 1= Not Influential.

Data Analytical Procedure

Descriptive statistics (Means and Standard Deviations) are reported both at the item level, at the subscale level and also by various demographic factors. Cronbach's alpha was used to check the internal consistencies of the responses to the survey items. T-tests were used to examine the differences between gender, experience teaching hybrid, and experience teaching online. Bonferroni adjustment was used to set the p value to .004 due to 12 family wise comparisons. Analysis of variance (ANOVA) was employed to examine differences among faculty responses based on primary online teaching method, years of experience teaching, academic discipline, academic rank, and teaching level. We used effect sizes from ANOVA (small = .01; moderate = .06; large = .14) to document the size of obtained differences (Cohen, 1988).

Results

Faculty Beliefs on the Importance and Competence of Using Digital Technologies

Descriptive Statistics (Means and Standard Deviations) by item within each of the four subscales (Learning Management System, Collaboration Tools, Audio Visual Tools and Technology Trends) are reported in Table 2.

Influence of Motivational Factors for Faculty Using Digital Technologies

Descriptive Statistics (Means and Standard Deviations) by item that influenced their use of digital technologies are reported in Table 3. Descriptive statistics on importance and competence scores by demographic characteristics are reported in Table 4.

Demographic Factors and Faculty Perception of Importance and Competence on Using Digital Technologies

Comparison between gender and experience teaching hybrid and online.

Gender. Three independent-samples t-tests were conducted to compare faculty beliefs on the importance of digital technologies and competence on the use of digital technologies between male and female faculty. There were no significant differences in the scores between male and female faculty on the importance of digital technologies or the competence in using digital technologies.

Experience teaching hybrid. Three independent-samples t-tests were conducted to compare faculty belief on importance of digital technologies, competence on the use of digital technologies and faculty motivation to use digital technologies between faculty who have taught hybrid and those who have not.

There were significant differences between faculty who had taught hybrid and not, on the importance of collaboration tools, $t(154.39) = 5.68$, $p < .001$, $d = 0.78$ (large effect), importance of audio visual tools $t(242) =$

Table 4
Descriptive Statistics of Importance and Competence Scores by Demographic Characteristics

	Importance				Competence			
	Learning Management System M (SD)	Collaboration Tools M (SD)	Audio Visual Tools M (SD)	Technology Trends M (SD)	Learning Management System M (SD)	Collaboration Tools M (SD)	Audio Visual Tools M (SD)	Technology Trends M (SD)
Gender								
Female	3.71 (0.67)	2.69 (0.77)	2.69 (0.75)	2.18 (0.90)	3.465 (0.60)	3.33 (0.70)	2.86 (0.78)	2.48 (0.84)
Male	3.68 (0.67)	2.54 (0.80)	2.47 (0.75)	2.10 (0.89)	3.49 (0.62)	3.13 (0.81)	2.82 (0.97)	2.46 (0.96)
Rank								
Full Professor	3.55 (0.86)	2.52 (0.83)	2.52 (0.85)	2.00 (0.96)	3.36 (0.69)	2.97 (0.89)	2.42 (0.93)	2.20 (0.87)
Associate	3.67 (0.67)	2.70 (0.80)	2.58 (0.78)	2.10 (0.94)	3.67 (0.48)	3.35 (0.71)	2.83 (0.87)	2.47 (0.93)
Assistant	3.63 (0.80)	2.48 (0.75)	2.54 (0.80)	2.03 (0.79)	3.66 (0.71)	3.43 (0.70)	3.13 (0.85)	2.64 (0.87)
Full-time Lecturer	3.83 (0.45)	2.67 (0.73)	2.69 (0.73)	2.19 (0.87)	3.67 (0.56)	3.29 (0.62)	2.85 (0.73)	2.47 (0.84)
Part-time Lecturer	3.82 (0.45)	2.75 (0.78)	2.62 (0.62)	2.33 (0.90)	3.59 (0.59)	3.21 (0.84)	2.95 (0.83)	2.50 (0.87)
Primary Delivery Method								
Asynchronous	3.86 (0.42)	2.80 (0.69)	2.73 (0.74)	2.27 (0.87)	3.74 (0.52)	3.39 (0.63)	3.01 (0.81)	2.59 (0.84)
Synchronous	3.80 (0.56)	2.76 (0.46)	2.76 (0.78)	2.07 (0.91)	3.47 (0.52)	3.38 (0.62)	2.71 (0.86)	2.29 (0.87)
Hybrid	3.68 (0.61)	2.93 (0.70)	2.77 (0.69)	2.35 (1.01)	3.54 (0.63)	3.43 (0.58)	3.04 (0.72)	2.77 (0.86)
Face-to-Face	3.63 (0.75)	2.30 (0.80)	2.40 (0.75)	1.89 (0.84)	3.50 (0.66)	3.13 (0.84)	2.65 (0.88)	2.20 (0.89)
Level								
Undergraduate	3.77 (0.56)	2.49 (0.79)	2.49 (0.76)	2.08 (0.90)	3.60 (0.60)	3.13 (0.76)	2.76 (0.85)	2.41 (0.90)
Masters	3.66 (0.77)	2.90 (0.64)	2.84 (0.68)	2.24 (0.83)	3.59 (0.64)	3.42 (0.72)	3.00 (0.83)	2.53 (0.87)
Doctoral	3.50 (0.82)	2.60 (0.81)	2.50 (0.85)	2.00 (1.02)	3.50 (0.63)	3.37 (0.72)	2.66 (0.92)	2.34 (0.82)
Years Teaching								
0-5 years	3.83 (0.54)	2.68 (0.75)	2.67 (0.79)	2.25 (0.89)	3.55 (0.59)	3.34 (0.65)	3.00 (0.92)	2.58 (0.86)
6-10 years	3.86 (0.41)	2.63 (0.67)	2.59 (0.68)	2.07 (0.74)	3.82 (0.39)	3.39 (0.64)	2.90 (0.75)	2.48 (0.86)
11-15 years	3.89 (0.38)	2.58 (0.79)	2.61 (0.72)	2.07 (0.93)	3.71 (0.46)	3.32 (0.70)	2.98 (0.77)	2.47 (0.84)
More than 15 years	3.55 (0.80)	2.63 (0.83)	2.59 (0.80)	2.16 (0.95)	3.49 (0.70)	3.13 (0.84)	2.74 (0.90)	2.41 (0.92)
Academic Discipline								
Humanities	3.72 (0.67)	2.35 (0.81)	2.41 (0.81)	1.86 (0.77)	3.60 (0.60)	3.18 (0.79)	2.67 (0.80)	2.25 (0.83)
Social sciences	3.66 (0.70)	2.87 (0.66)	2.76 (0.74)	2.35 (0.93)	3.64 (0.62)	3.44 (0.62)	3.09 (0.76)	2.69 (0.84)
Computing and natural sciences	3.72 (0.63)	2.03 (0.86)	2.19 (0.63)	1.74 (0.91)	3.55 (0.60)	2.89 (0.97)	2.35 (1.09)	2.05 (0.97)
Health science	3.91 (0.43)	2.91 (0.45)	2.89 (0.56)	2.56 (0.66)	3.36 (0.66)	3.00 (0.73)	2.63 (0.91)	2.51 (0.83)
Taught Online								
Yes	3.84 (0.47)	2.77 (0.69)	2.68 (0.74)	2.17 (0.85)	3.71 (0.51)	3.41 (0.63)	2.99 (0.80)	2.56 (0.85)
No	3.48 (0.85)	2.36 (0.85)	2.43 (0.76)	2.04 (0.98)	3.41 (0.69)	2.98 (0.85)	2.56 (0.87)	2.28 (0.92)
Taught Hybrid								
Yes	3.76 (.059)	2.83 (0.68)	2.74 (0.74)	2.33 (0.93)	3.68 (0.58)	3.42 (0.54)	3.02 (0.74)	2.65 (0.85)
No	3.61 (0.77)	2.25 (0.81)	2.34 (0.73)	1.78 (0.71)	3.45 (0.68)	2.95 (0.94)	2.49 (0.94)	2.10 (0.84)

4.04, $p < .001$, $d = 0.54$ (medium effect), and importance of technology trends $t(219.73) = 5.23$, $p = .001$, $d = 0.67$ (medium effect). Faculty who had taught hybrid had rated the subscales higher in all three cases.

There were also significant differences between faculty who had taught hybrid and not on their competence of collaboration tools $t(118.24) = 4.33$, $p < .001$, $d = 0.62$ (medium effect), competence of audio visual tools

t(146.47) = 4.59, p < .001, d = 0.63 (medium effect), and competence of technology trends t(242) = 4.95, p = .001 , d = 0.66 (medium effect). Faculty who had taught hybrid had rated the subscales higher in all three cases.

Experience teaching online. Three independent-sample t-tests were conducted to compare faculty belief on importance of digital technologies, competence on the use of digital technologies, and faculty motivation to use digital technologies between faculty who have taught online and those who have not.

There were significant differences between faculty who had taught online and those who have not on importance of learning management systems t(116.46) = 3.64, p < .001, d = 0.52 (medium effect) and on the importance of collaboration tools t(149.96) = 3.83, p < .001, d = 0.57 (medium effect). Faculty who had taught online rated the subscales higher in both the subscales.

There were significant differences between faculty who had taught online and those who have not on competence of learning management systems t(138.13) = 3.55, p =.001, d = 0.52 (medium effect), on the competence of collaboration tools t(138.49) = 4.16, p < .00,1 and on the competence of audio visual tools t(242) = 3.82, p < .001, d = 0.57 (medium effect). Faculty who had taught online rated the subscales higher in all three cases.

Comparison between academic rank, primary teaching method, teaching level, and years of teaching.

Academic rank. One-way ANOVA was used to compare faculty perception on the importance of using digital technologies and competence between academic rank, which included full professor, associate professor, assistant professor, full-time lecturer, and part-time lecturer.

One way ANOVA revealed significant differences between faculty of different academic rank on competency with audio visual tools, F(4, 236) = 4.23, p = .003, η² = .067 (medium effect). Tukey post-hoc tests revealed a significant difference between full professors and assistant professors as well as between full professors and part-time lecturers. Assistant professors and part-time lecturers rated had higher faculty belief in their competency with audio visual tools compared to Full professors.

Primary teaching method. One-way ANOVA was used to compare faculty perception on the importance of using digital technologies and of having competence in using those technologies as primary teaching tools in courses that are face-to-face, hybrid/blended, synchronous online, or asynchronous online.

One way ANOVA revealed significant differences between faculty who teach via different teaching methods on the importance of collaboration tools F(3, 219) = 8.25, p < .001, η² = .101 (medium effect). Tukey

post-hoc tests revealed a significant difference between faculty who teach asynchronous, hybrid/blended with faculty who teach face to face. Faculty who teach asynchronous, hybrid/blended significantly rated higher on the importance of collaboration tools compared to faculty who teach face to face.

Teaching level. One-way ANOVA was used to compare faculty perception of the importance of using digital technologies and of competence in using digital technologies among faculty who teach at different levels: undergraduate, masters, and doctoral.

One way ANOVA revealed significant differences between faculty at different teaching levels on the importance of collaboration tools F(2, 236) = 6.96, p < .001, η² = .055 (medium effect). Tukey post-hoc tests revealed faculty who teach undergraduate students were significantly lower in their ratings on the importance of collaboration tools as compared to the faculty who teach at the Masters level.

Years of teaching. One-way ANOVA was used to compare faculty perception on importance of using digital technologies and competence of using digital technologies between faculty with varied years of teaching experience: 1-5 years, 6-10 years, 11-15 years, and more than 15 years.

One way ANOVA revealed significant differences between faculty with different years of teaching experience on the importance of learning management systems F(3, 241) = 4.96, p = .002, η² = .058 (medium effect). Tukey post-hoc tests revealed faculty who taught 6-10, or 11-15 years had significantly higher belief than those who had taught more than 15 years.

Discussion

Highest Rated Technology

The faculty rated learning management system as the highest in both terms of importance and competence in using technology. The high rating of importance and competence of LMS is not a new finding on its own due to the prevalence of LMS use and integration as a popular, or even necessary, tool (Vovides et al., 2007). However, combined with the finding that faculty rated benefit to learning as the most influential factor for digital technology adoption, it has implications for the design of university programs for professional development. Jia, Bhatti, and Nahavandi (2014) found that faculty's belief of the value of LMS can be influenced by providing faculty with customized workshops linking specific LMS functions and features to instructional goals. The LMS support is tied to overall technology integration and previous conclusions that tie competence to the belief that technology can support learning (Koehler & Mishra, 2005; Mishra & Koehler, 2006; Niess, 2005, 2011).

Additional implications for these findings support recommendations for universities to invest resources in providing LMS support such as user-centered software that can increase faculty competence and belief in their abilities to apply LMS for their instructional needs, online course templates for faculty (Zheng, Wang, Doll, Deng, & Williams, 2018), and technical support that helps faculty users overcome the learning curve and solves technical issues on LMS usage (Yusof, Kuljis, Papazafeiropoulou, & Stergioulas, 2008).

Lowest Rated Technology

Faculty rated social media as the lowest in terms of importance and adaptive learning the lowest in terms of competence. Faculty could have rated social media as the least important technology due to the cultural resistance, pedagogical issues, or institutional constraints that results with social media use in higher education (Manca & Ranieri, 2016). Moran, Seaman and Tinti-Kane (2011) list privacy and integrity as the two most important concerns of faculty use of social media, which thus hinders faculty from using social media with their students.

Reid's (2017) work about the explanation of layers of technology and adoption provides a plausible explanation for the low ratings on competence in adaptive technology, which is a new technology trend. She cautions that an instructor who is adopting a new pedagogy and instructional technology must have a high comfort level in all the foundational skills that lead or progress to the new skills. Adaptive learning may score low on the diffusion of innovation scale due to the novelty (Rogers, 2003).

Motivational Factors Influencing Technology Adoption

Faculty rated benefit to learning as the most influential factor for digital technology adoption. Faculty rated reappointment, promotion, and tenure as the least influential factor for digital technology adoption. These findings are consistent with findings in the literature of motivating faculty to use digital technologies. In addition to the consideration of theoretical approaches to adoption (Reid, 2012, 2017), institutions may be able to increase faculty motivation to engage with digital technologies by fostering a supportive environment and providing release time (Bousbahi & Alrazgan, 2015; Polly, Grant and Gikas, 2011).

Based on the fact that reappointment, promotion, and tenure were not very influential for the adoption of digital technology, administrators may look for other ways to motivate and support faculty. For example, if administrators value teaching with digital technology, they may consider rewarding faculty by providing time to design and opportunities to learn the technology skills for integrating technology or supporting others' integration of technology in their teaching (Zheng et al., 2018).

Teaching Experience and Technology

Faculty with hybrid teaching experience. Faculty who taught in hybrid mode rated the importance and competence of collaboration tools, audio visual tools, and technology trends higher than those who did not have hybrid teaching experience. A plausible explanation could be the instructional beliefs of those teaching in a hybrid format and the benefits they have found from integrating technology in their hybrid classroom.

Faculty who teach asynchronous, hybrid/blended courses rated higher on the importance of collaboration tools compared to faculty who teach face to face. As stated earlier, online instructors and hybrid instructors value collaborative technological tools that provide interaction between learners and instructors (Martin & Bolliger, 2018).

Faculty with online teaching experience. As expected, faculty who had taught online rated the importance and competence of LMS and collaboration tools higher than those who had not. They had also rated the competence of audio visual tools higher than those who had not. The LMS, collaboration tools, and audio visual tools are necessary for successful online teaching and therefore would provide relative advantage, compatibility, and observability in the area of innovation diffusion. Beyond necessity, however, the authors are hopeful too that faculty teaching online are aware, from either their own class assessments or from studies on student engagement, that online learners most value strategies, such as use of collaboration tools, that provide interaction between learners and instructors (Martin & Bolliger, 2018). In addition, effective online instructors value collaborative learning experiences and using technology in ways that support learning that align with their beliefs (Bernard, Borokhovski, & Schmid, 2014).

A similar rationale can be applied to understanding why competence in audio/visual tools is higher with faculty who have taught online. Martin and Bolliger (2018) found that when students wrote about course materials, they reported positive reactions to video lectures and preferred to have content presented in a variety of formats (e.g., multimedia files).

Years of teaching experience. Faculty who had taught 6-10, 11-15 years had higher perception on the importance of Learning Management System (LMS) compared to faculty who had taught more than 15 years. This finding makes sense based on the time period in which LMS' became more widely used at universities, and the recent data on faculty use of LMS (Dahlstrom et al., 2014).

Faculty who teach Masters students. Faculty who teach Masters students had higher ratings on their belief of importance of collaboration tools compared to faculty who teach undergraduate students. Undergraduate level courses contain less experienced learners, instructors who rate collaboration tools as less important saw less group work among undergraduate students. However, graduate students are more experienced, and it is thus not surprising that the instructors who teach graduate students value collaboration tools higher. Ioannou, Brown, and Artino (2015) found that when researching on collaboration with 34 online graduate students, groups who used a wiki groups tend to be more collaborative, whereas in a threaded discussion, groups tend to be more cooperative.

Academic Rank

Assistant professors and part-time lecturers had higher belief on their competency with audio/visual tools compared to full professors. The literature is scarce in tying faculty rank and competency with digital technologies, especially with a specific set of tools like audio visual tools. Work published nearly 10 years ago proposed and provided evidence that part-time faculty were more likely than full-time tenure track faculty to integrate Web 2.0 technologies such as blogs and wikis (Yu, Brewer, Pennell, & Digangi, (2009). The diffusion of innovation theory (Rogers, 2003) may be applicable to the adoption, but the authors Yu and colleagues (2009) used Hall's (1979) framework of the Concern Based Adoption Model to support the assumption that faculty members might feel that the use of Web 2.0 requires an undesired change in their current teaching processes and thus is detrimental to their teaching (Ajjan & Hartshorne, 2008). They concluded that full-time faculty members may find it difficult to make time to learn new instructional technologies and may focus their attention instead on research and service while part-time, non-tenure track faculty members are hired to teach; therefore, they may be more eager to adopt new technologies aimed at engaging students (Yu et al., 2009). This shows the importance of institutions to provide time and space for full-time faculty to make digital technology integration a priority. The role of faculty rank, the integration of digital technologies in teaching, and recognition of digital technology integration in the faculty tenure and promotion process are potential areas for future research.

Limitations

There were some methodological limitations in this study. Firstly, the sample does not represent the target population as only 9% of participants responded. Secondly, all data were self-reported due to the nature of the study. Some faculty may not be familiar with all of the digital technologies and there might be a response bias. Thirdly, this list of digital technologies is not an exhaustive list of all digital technologies and therefore only provides a snapshot. Readers should interpret the results with caution due to these limitations because results may have limited generalizability in different settings and contexts.

Implications and Future Directions

Faculty perception on using digital technologies plays a major role in how faculty approach teaching goals, tasks, and challenges. Studies of higher education faculty beliefs on digital technologies integration are important as they provide information about how faculty might be trained and supported by professional development initiatives in higher education institutions. The results of this study have broad implications for 1) faculty who are interested in teaching online or hybrid and interested in using digital technologies; 2) instructional designers and other support staff who assist faculty in their preparation to integrate digital technology; 3) administrators who can provide support for the faculty to integrate technology; and 4) researchers who can build on this study to investigate with specific technology and in specific contexts. Learning Management Systems were rated the highest for importance and competence and these findings have implications for administrators to invest resources on the LMS and various LMS functionalities. There are also implications for offering professional development support for faculty on using the LMS. While social media is commonly for personal use, it was still rated the lowest for importance with regard to teaching and learning. This has implications for researchers to further investigate how social media can be used in teaching and learning. Benefit to learning was the biggest motivation for faculty to use a particular technology. This was encouraging and has implications for administrators and teaching and learning support staff to assist faculty in identifying and using technology due to the various benefits it offers for teaching and learning. This study also has implications for faculty development for those who teach more than 15 years, who teach undergraduate students and are at the rank of full professor. Their technology use ratings were lower in specific aspects compared to other faculty. Administrators might consider offering specialized training and support for this demographic faculty audience on digital technology integration.

Future research studies should include a combination of data sources including, but not limited to, surveys, focus groups, interviews, and document analysis in order to collect data from faculty members at multiple institutions that vary in size and location. These studies could provide a deeper understanding

about faculty perception of technology integration and possibly examine interventions and approaches to addressing these perceptions. Another factor worthy of further examination is faculty perception compared to institution type using the classifications provided by the Carnegie Foundation (Indiana University, 2018).

References

Ahmad, T. B. T., Madarsha, K. B., Zainuddin, A. M., Ismail, N. A. H., & Nordin, M. S. (2010). Faculty's acceptance of computer-based technology: Cross-validation of an extended model. *Australasian Journal of Educational Technology*, *26*(2). Retrieved from https://ajet.org.au/index.php/AJET/article/view/1095

Ajjan, H., & Hartshorne, R. (2008). Investigating faculty decisions to adopt Web 2.0 technologies: Theory and empirical tests. *Internet and Higher Education, 11*, 71–80

Alsawaier, R. S. (2018). The effect of gamification on motivation and achievement. *International Journal of Information and Learning Technology*, *35*(1), 56-79.

Barata, G., Gama, S., Jorge, J., & Gonçalves, D. (2013). Improving participation and learning with gamification. *Proceedings of the First International Conference on Gameful Design, Research, and Applications,* 10-17. doi:10.1145/2583008.2583010

Belikov, O., & Bodily, R. (2016). Incentives and barriers to OER adoption: A qualitative analysis of faculty perceptions. *Open Praxis, 8*(3), 235-246.

Bernard, R. M., Borokhovski, E., & Schmid, R. F. (2014). A meta-analysis of blended learning and technology use in higher education: From the general to the applied. *Journal of Computing in Higher Education*, *26*(1), 87-122.

Biasutti, M. (2017). A comparative analysis of forums and wikis as tools for online collaborative learning. *Computers & Education*, *111*, 158-171.

Birch, D., & Burnett, B. (2009). Bringing academics on board: Encouraging institution-wide diffusion of e-learning environments. *Australasian Journal of Educational Technology*, *25*(1). Retrieved from https://ajet.org.au/index.php/AJET/article/view/1184

Bousbahi, F., & Alrazgan, M. (2015). Investigating IT faculty resistance to learning management system adoption using latent variables in an acceptance technology model. *The Scientific World Journal*, 2015, 1–11. doi:10.1155/2015/375651

Brown, M. G. (2016). Blended instructional practice: A review of the empirical literature on instructors' adoption and use of online tools in face-to-face teaching. *The Internet and Higher Education*, *31*, 1-10.

Buchanan, T., Sainter, P., & Saunders, G. (2013). Factors affecting faculty use of learning technologies: Implications for models of technology adoption. *Journal of Computing in Higher education*, *25*(1), 1-11.

Burke, S. C., Snyder, S., & Rager, R. C. (2009). An assessment of faculty usage of YouTube as a teaching resource. *The Internet Journal of Allied Health Sciences and Practice, 7*(1). Retrieved from https://nsuworks.nova.edu/ijahsp/vol7/iss1/8/

Cheung, R., & Vogel, D. (2013). Predicting user acceptance of collaborative technologies: An extension of the technology acceptance model for e-learning. *Computers & Education*, *63*, 160-175.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Conole, G., de Laat, M., Dillon, T., & Darby, J. (2008). 'Disruptive technologies', 'pedagogical innovation': What's new? Findings from an in-depth study of students' use and perception of technology. *Computers & Education*, *50*(2), 511–524. doi:10.1016/j.compedu.2007.09.009

Dahlstrom, E., Brooks, D. C., & Bischel, J. (2014). *The current ecosystem of learning management systems in higher education: Student, faculty, and IT perspectives*. *Research report.* Louisville, CO: ECAR.

Englund, C., Oloffson, A. D., & Price, L. (2017). Teaching with technology in higher education: Understanding conceptual change and development in practice. *Higher Education Research & Development*, *36*(1), 73-87.

Fathema, N., Shannon, D., & Ross, M. (2015). Expanding the Technology Acceptance Model (TAM) to examine faculty use of Learning Management Systems (LMSs) in higher education institutions. *Journal of Online Learning & Teaching*, *11*(2), 210-232.

Fleagle, C. L. (2012). *Identifying faculty motivations to increase technology use in pedagogy at a midwestern university*. (Unpublished doctoral dissertation). Iowa State University, Ames, IA. Retrieved from https://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=3328&context=etd

Fu, Q., & Hwang, G. (2018). Trends in mobile technology-supported collaborative learning: A systematic review of journal publications from 2007 to 2016. *Computers & Education, 119*, 129–143. https://doi.org/10.1016/j.compedu.2018.01.004

Ganley, B. J., & Linnard-Palmer, L. (2012). Academic safety during nursing simulation: Perceptions of nursing students and faculty. *Clinical Simulation in Nursing*, *8*(2), e49-e57.

Hall, G. E. (1979). The concerns-based approach to facilitating change. *Educational Horizons, 57*, 202-208.

Herro, D., King, E., Jacques, L. & Wersinger, B. (2016). Games as a unifying influence in education: Faculty and student perspectives of

Game-based Learning. In G. Chamblee & L. Langub (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 562-566). Savannah, GA: Association for the Advancement of Computing in Education (AACE).

Howard, V. M., Englert, N., Kameg, K., & Perozzi, K. (2011). Integration of simulation across the undergraduate curriculum: Student and faculty perspectives. *Clinical Simulation in Nursing*, *7*(1), e1-e10.

Huda, M., Ulftami, Padang, B., Luthi, M. J., Jasmi, K.A., Basiron, B…. (2019). Adaptive online learning technology: Trends in big data era. In D. Williams & N. N. Harkness (Eds.), *Diverse Learning Opportunities through Technology-based Curriculum Design* (pp. 163-195). Hershey, PA: IGI Global.

Indiana University. (2018). *Carnegie classification of institutions of higher education* (2018). Retrieved from http://carnegieclassifications.iu.edu/

Ioannou, A., Brown, S. W., & Artino, A. R. (2015). Wikis and forums for collaborative problem-based activity: A systematic comparison of learners' interactions. *The Internet and Higher Education*, *24*, 35-45.

Jia, D., Bhatti, A., & Nahavandi, S. (2014). The impact of self-efficacy and perceived system efficacy on effectiveness of virtual training systems. *Behaviour & Information Technology, 33*(1), 16-35. doi:10.1080/0144929X.2012.681067

Kapp, K. (2012). *The gamification of learning and instruction: Game-based methods and strategies for training and education.* New York, NY: Wiley & Sons.

Kirkman, T. R. (2013). High fidelity simulation effectiveness in nursing students' transfer of learning. *International Journal of Nursing Education Scholarship*, *10*(1), 171-176.

Koehler M. J., & Mishra, P. (2005) What happens when teachers design educational technology? The development of technological pedagogical content knowledge. *Journal of Educational Computing Research 32,* 131–152.

Lantz, C., Insua, G. M., Armstrong, A., Dror, D., & Wood, T. (2018). "I'm a visual learner so I like this": Investigating student and faculty tutorial preferences. *Internet Reference Services Quarterly, 22*(4), 181-192. doi:10.1080/10875301.2018.1427171.

Lee, M. H., & Tsai, C. C. (2010). Exploring teachers' perceived self-efficacy and technological pedagogical content knowledge with respect to educational use of the World Wide Web. *Instructional Science*, *38*(1), 1–21.

Lehman, B., D'Mello, S., Cade, W., & Person, N. (2012). How do they do it? Investigating dialogue moves within dialogue modes in expert human

tutoring. In S. Cerri, W. J. Clancey, G. Papadourakis, & K. Panourgia (Eds.), *Intelligent tutoring systems*: *The 11th international conference on Intelligent Tutoring Systems*, ITS 2012 (pp. 557-562). Berlin, DE: Springer.

Lister, M. C. (2015). Gamification: The effect on student performance and motivation at the post-secondary level. *Issues and Trends in Educational Technology*, *3*(2). Retrieved from https://journals.uair.arizona.edu/index.php/itet/article/view/18661/18410

Manca, S., & Ranieri, M. (2016). Facebook and the others. Potentials and obstacles of social media for teaching in higher education. *Computers & Education*, *95*, 216-230.

Martin, F., & Bolliger, D. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. *Online Learning Journal. 22*, 205-222. doi:10.24059/olj.v22i1.1092

Martin, F., & Parker, M. A. (2014). Use of Synchronous virtual classrooms: Why, who and how? *MERLOT Journal of Online Learning and Teaching*, *10*(2), 192-210.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for integrating technology in teacher knowledge. *Teachers College Record*, *108*(6), 1017-1054.

Moran, M., Seaman, J., & Tinti-Kane, H. (2011). *Teaching, learning, and sharing: How today's higher education faculty use social media*. Boston, MA: Babson Survey Research Group.

New Media Consortium. (2017). *NMC Horizon Report: 2017 higher education edition.* Retrieved from http://cdn.nmc.org/media/2017-nmc-horizon-report-he-EN.pdf

Niess M. L. (2005) Preparing teachers to teach science and mathematics with technology: Developing a technology pedagogical content knowledge. *Teaching and Teacher Education, 21,* 509–523.

Niess M. L. (2011) Investigating TPACK: Knowledge growth in teaching with technology. *Journal of Educational Computing Research 44,* 299–317.

Pimmer, C., Mateescu, M., & Grohbiel, U. (2016). Mobile and ubiquitous learning in higher education settings. A systematic review of empirical studies. *Computers in Human Behavior, 63,* 490–501.

Polly, D., Grant, M. M., & Gikas, J. (2011). Supporting technology integration in higher education through professional development. In D. W. Surry, J. Stefurak, & R. M. Gray, Jr. (Eds.), *Infrastructure and issues for technology in higher education* (p. 58-71). Hershey, PA: Informational Science Reference. doi:10.4018/978-1-60960-147-8.ch005.

Price, L., & Kirkwood, A. (2014). Using technology for teaching and learning in higher education: A

critical review of the role of evidence in informing practice. *Higher Education Research & Development*, *33*(3), 549–564. doi:10.1080/07294360.2013.841643

Reid, P. (2012). Categories for barriers to adoption of instructional technologies. *Education and Information Technologies*, 19, 383-407. doi:10.1007/s10639-012-9222-z

Reid, P. (2017). Supporting instructors in overcoming self-efficacy and background barriers to adoption. *Education and Information Technologies*, *22*(1), 369-382.

Rhode, J., Richter, S., Gowen, P., Miller, T., & Wills, C. (2017). Understanding faculty use of the Learning Management System. *Online Learning, 21*(3), 68-86.

Rogers, E. (2003). *Diffusion of innovations* (5th ed.). New York, NY: Free Press

Rollnick, S., Mason, P., & Butler, C. C. (2010). *Health behavior change e-book*. Edinburgh, UK: Elsevier Health Sciences.

Ryu, H., & Parsons, D. (2012). Risky business or sharing the load? Social flow in collaborative mobile learning. *Computers & Education, 58,* 707–720.

Schoonenboom, J. (2014). Using an adapted, task-level technology acceptance model to explain why instructors in higher education intend to use some learning management system tools more than others. *Computers & Education*, 71, 247-256.

Smith, E. G. (2014). *Faculty integration of technology in undergraduate courses at private colleges and universities.* Electronic Theses and Dissertations, Paper 2444. Retrieved from http://dc.etsu.edu/etd/2444

Stantchev, V., Colomo-Palacios, R., Soto-Acosta, P., & Misra, S. (2014). Learning management systems and cloud file hosting services: A study on students' acceptance. *Computers in Human Behavior*, *31*, 612-619.

Stedman, L. P., Roberts, T. G., Harder, A., Myers, B. E., & Thoron, A. C. (2011). The relationship between experience and self-perceptions of knowledge and relevance of teaching competencies of faculty in a college of agriculture and life sciences. *Journal of Agricultural Education, 52*(1), 50-60, doi:10.5032/jae/2011.01050

Sugar, W., Brown, A., & Luterbach, K. (2010). Examining the anatomy of a screencast: Uncovering common elements and instructional strategies. *The International Review of Research in Open and Distributed Learning*, *11*(3), 1-19.

Udell, J. (2005). What is screencasting? Retrieved from http://digitalmedia.oreilly.com/pub/a/oreilly/digitalmedia/2005/11/16/what-isscreencasting.html?page=2#heading2

VanLehn, K. (2011). The relative effectiveness of human tutoring, intelligent tutoring systems, and other tutoring systems. *Educational Psychologist, 46*(4), 197-221.

Veletsianos, G. (2012). Higher education scholars' participation and practices on Twitter. *Journal of Computer Assisted Learning*, *28*(4), 336-349.

Volery, T. (2001). Online education: An exploratory study into success factors. *Journal of educational computing research*, *24*(1), 77-92.

Vovides, Y., Sanchez-Alonso, S., Mitropoulou, V., & Nickmans, G. (2007). The use of elearning course management systems to support learning strategies and to improve self-regulated learning. *Educational Research Review, 2*(1), 64-74.

Watty, K., McKay, J., & Ngo, L. (2016). Innovators or inhibitors? Accounting faculty resistance to new educational technologies in higher education. *Journal of Accounting Education*, *36*, 1-15.

West, R. E., Waddoups, G., & Graham, C. (2007). Understanding the experiences of instructors as they adopt a course management system. *Educational Technology Research and Development, 55*(1), 1-26. doi:10.1007/s11423-006-9018-1

Young, J. R. (2012). Campuses look to digital tools for savings, and reinvention. *The Chronicle of Higher Education: Almanac of Higher Education.* Retrieved from http://chronicle.com/article/Leaders-Look-to-Technology-for/133932/

Yu, C., Brewer, L., Pennell, A., & Digangi, S. (2009, April). Adopting Web 2.0 for instruction: The effects of faculty rank and employment status. Paper presented at the Annual Meeting of the American Educational Research Association, San Diego, CA, April 2009.

Yusof, M. M., Kuljis, J., Papazafeiropoulou, A., & Stergioulas, L. K. (2008). An evaluation framework for health information systems: human, organization and technology-fit factors (HOT-fit). *International Journal of Medical Informatics, 77*(6), 386-398. doi:10.1016/j.ijmedinf.2007.08.011

Zheng, Y., Wang, J., Doll, W., Deng, X., & Williams, M. (2018). The impact of organisational support, technical support, and self-efficacy on faculty perceived benefits of using learning management system. *Behaviour & Information Technology*, *37*(4), 311-319. doi:10.1080/0144929X.2018.1436590

_____

FLORENCE MARTIN is a Professor in the Learning, Design and Technology program at University of North Carolina Charlotte. She teaches 100% online and has won the Crystal Award from AECT for her innovative online course. Dr. Martin engages in research focusing on the effective design of

instruction and integration of digital technologies to improve learning and performance. She has received over 1 million dollars in funding from the National Science Foundation for her research. She has served as the President of Division of Distance Learning and Division of Multimedia Production for AECT and is currently on the board for IBSTPI.

DREW POLLY is a Professor in the Elementary Education program at the University of North Carolina at Charlotte. Drew teaches courses related to instructional design, planning, assessment, and mathematics education. His research agenda focuses on ways to support in-service and pre-service teachers use of learner-centered pedagogies with and without technology in mathematics and other subject areas.

SHANNA COLES works as a Senior Program Manager in Distance Education at the University of North Carolina at Charlotte. Having served in leadership roles

in online program administration for over ten years, she has extensive experience supporting faculty and students from concept through enrollment. Shanna's research centers on innovative delivery of programs designed for adult students.

CHUANG WANG is a Professor of Educational Research at University of North Carolina at Charlotte. As a research methodologist, he supports students in research design and data analyses. He has received three National Science Foundation (NSF) grants and served as an independent evaluator for four other federally funded research grants from the U.S. Department of Education. He served as the Editor-in-Chief of the New Waves – Educational Research and Development Journal. He also served as the President of the Chinese American Educational Research and Development Association (2008-2010). He served as the Editor of the *Journal of Applied Educational and Policy Research*.

Enhancing the Academic Writing Abilities of First-Year Bachelor of Education Students in a Blended Learning Environment

David Scott, Sam Ulmer-Krol, and Jason Ribeiro
University of Calgary

Funded by a Scholarship of Teaching and Learning grant from a University in western Canada, this paper reports on findings from an educational design research study (McKenney & Reeves, 2012) investigating the ways, and the extent to which, particular technological supports and other interventions impacted the acquisition of academic writing skills for Bachelor of Education students working within a blended learning environment. Among the various findings, students emphasized the importance of integrating writing interventions in coordination with one another, as well as introducing a variety of effective pedagogical practices tailored to meet the needs of specific course assignments. Instructors found that by incorporating student feedback into the design and then redesigning the course, they were able to improve students' academic writing abilities without sacrificing course content.

Funded by a Scholarship of Teaching and Learning (SoTL) grant from a university in western Canada, this article reports on findings from a qualitative study informed by educational design research [EDR] (McKenney & Reeves, 2012) investigating the ways, and the extent to which, particular technological supports and pedagogical techniques impacted the acquisition of academic writing skills for Bachelor of Education [B.Ed.] students working within a blended learning environment. Situated within the context of a large mandatory first-year course for students enrolled in the university's four-year B.Ed. program for students wishing to become certified teachers, the impetus to undertake this study was based on the observation by the researchers, one of whom was the instructor, that many of the over 180 students enrolled in this class struggled with academic writing. This included the ability to stay focused on a clear and answerable research question, synthesizing insights from the research literature using appropriate citations, and developing and elaborating upon a few key ideas rather than introducing many ideas in a superficial and cursory way. Notably, however, there were no stand-alone academic writing courses in the university's B.Ed. program.[1]

The need to develop greater academic writing competencies among undergraduate students, including those in professional programs, is supported by research that suggests students' levels of academic writing proficiency have a strong influence on academic achievement levels, as well as success after graduation (Defazio, Jones, Tennant & Hook, 2010; Holtzman, Elliot, Biber, & Sanders, 2005; Saidy, 2015). As Holtzman and colleagues (2005) asserted, "[T]he ability to communicate effectively has been recognized as a hallmark for membership in the learned professions" (p.

285). Given the importance of effective written communication, research has found that academic writing skills are an ongoing challenge for undergraduate students (Bartllet, 2003; Fallahi, Wood, Austad & Fallahi, 2006; Holtzman et al, 2005; Manzo, 2003).

While there is an established body of literature on how to improve the acquisition of academic writing skills for undergraduate students (e.g., Babcock & Thonus, 2012; Graham, Gillespie, & McKeown, 2012; Stein, Dixon, & Isaacson, 1994), a number of studies have concluded that university instructors in disciplines outside of English have great difficulty helping their students improve their academic writing abilities (Boice, 1990; Fallahi et al., 2006; Goddard, 2002). According to Fallahi and colleagues (2006), this situation can be attributed to the reality that many instructors at the undergraduate level "may tacitly accept poor writing because of the labor-intensive nature of teaching basic writing skills, insufficient training in writing instruction, and concerns about the need to focus on content" (p. 171).

Given this reality, increasingly instructors at the post-secondary level are seeking to overcome these challenges by leveraging the affordances of blended learning environments that allow for the integration of technological supports to aid students in developing writing skills. Research suggests, however, that it is difficult to ascertain the effectiveness of one technology over another in promoting the acquisition of academic writing skills (Allen & Tay, 2012; Dishaw, Eierman, Iversen, & Philip, 2011; Wheeler & Wheeler, 2009). Based on a need for more empirical research concerning how the affordances of blended learning environments can be best leveraged to improve the academic writing abilities of undergraduate students, this two-year qualitative design-based study involved creating, introducing, and iteratively assessing and modifying a series of writing interventions specifically tailored to the assignments and the unique writing needs of B.Ed. students in this first-year mandatory course.

---

[1] In contrast to the US context where many universities have a first-year writing program or requirement, a lack of such programtic requirements is not uncommon in Canadian universities.

Methodology and Data Sources

This study was informed by educational design research [EDR] methodology (McKenney & Reeves, 2012), which "strives to positively impact practice, bringing about transformation through design and use of solutions to real problems" (p. 14). In striving to solve authentic real-world problems, challenges, and issues in education, EDR reflects characteristics of participatory forms of research in that the research is done *with* rather than *on* people and, moreover, it is collaborative, responsive, and iterative in nature. EDR requires that the development of solutions to complex educational problems is done in "close coordination" with the intended audience who provide ongoing cycles of feedback about the viability of solutions created to address the problem (Kophca et al. 2017, p. 32). In this way EDR seeks to create innovations that are generated within specific contexts in ways that are valued and useful to the people the solutions seek to serve.

EDR additionally seeks to generate, and further elaborate upon, theoretical understandings in the field. According to McKenney and Reeves (2012), this can involve contributing to theory within such diverse domains as "learning in specific subject areas (e.g., domain-specific instructional theories), classes of learning problems (e.g., learning theories), and principles for guiding other design efforts (e.g., innovation theory)" (p. 13). However, while EDR requires iterative cycles of feedback from those the proposed innovations are being designed for, unlike many forms of participatory research, the researchers take the initiative in leading the research, as well as designing and refining the interventions to be studied (Wang & Hannafin, 2005). Informed by these insights, we adopted McKenney and Reeve's (2012) generic model of EDR involving three key stages: 1) analysis and exploration, 2) design and construction, and 3) evaluation and reflection. Noting the need within DBR to ensure a "flexible, iterative process" (McKenney & Reeve, 2012, p. 77), we worked through these three phases two times over the course of the study, which began in the fall of 2016 and ended in December of 2017.

To evaluate the ways, and the extent to which, these interventions impacted the acquisition of academic writing skills for students, data was drawn from several channels. Data sources in the first cycle of the study included an anonymous digital survey comprised of short answer questions focused on the perceived effectiveness of the writing interventions that had been introduced over the course of the term (Y1SP; 35 students). Qualitative data was additionally drawn from two focus group interviews made up of four (Y1FG1) and six students (Y1FG2), as well as a 60-minute semi-structured interview with the instructor

and teaching assistant [TA] (Y1IFG). Our aim in conducting these interviews was to draw out and clarify themes that emerged from the surveys to elicit richer and more nuanced data.

In year two of the design cycle, data was drawn from a similar data set as in year one, including the same anonymous digital survey (Y2SP; 29 students), one focus group interview involving seven students (Y2FG), and a 60-minute semi-structured interview with the instructor. As with the first year, both interviews were conducted by a research assistant and administered after all the student grades had been submitted. The qualitative data sets for year one and two were separately coded for common categories involving phrasing and responses that reflected similar and corresponding interpretations related to the perceived effectiveness of the writing interventions introduced in this course (Miles, Huberman & Saldaña, 2014, p. 12).

Analysis and Exploration Cycle 1

In the initial analysis and exploration phase, the research team, aided by a research assistant and working with colleagues, undertook a systematic review of the research literature, examining innovative technologies and pedagogical approaches to instruction that have been proven to enhance the acquisition of academic writing skills for undergraduate students in blended learning environments. After identifying 26 peer-reviewed articles providing empirically grounded insights into this topic, an annotated bibliography was created and published as a report (Scott, Ribeiro, Burns, Danyluk, & Bodnaresko, 2017). Three key principles emerged from this review of the literature, which subsequently guided the creation of interventions that were introduced in the course.

Design principle 1: The types of technology used are less important than how they are used. One of the key insights that emerged from this systematic review of the research literature concerned the insight that studies to this point have been inconclusive that one technology was more effective than another in improving academic writing abilities for undergraduate students (Scott et al., 2017). This was the case for the most prominent technological interventions in the research literature including wikis (Allen & Tay, 2012; Allwardt, 2011; Dishhaw et al., 2011; Stetson, 2016), discussion forums (Birch, 2016; Wheeler & Wheeler, 2009; Wijeyewardene, Patterson, & Collins, 2013), and instructional videos (Balzotti & McCool, 2016; Engin & Donanci, 2016). Dishaw and colleagues (2011), for example, compared survey responses from groups of undergraduate students who used wikis and groups who exchanged word processing documents through email. The data revealed that the students rated the word processor and email communications as both easier to

use and more useful compared to the wikis, though the data also revealed no difference between the two approaches in terms of the development of student's writing abilities, despite the advanced technological nature of the wiki platform.

Overall, the this review of the research literature (Scott et al., 2017) determined that, contrary to popular belief, contemporary students are not necessarily digital natives. Instructors therefore need to outline the value of the technology and, moreover, provide instruction around best practices for using particular technological tools in ways that can help them enhance their work within course assignments (Birch, 2016; Chanock, D'Cruz, & Bisset, 2009; Ellis, 2011; Yang & Durrington, 2010). Without these elements in place, insights from the review of the literature suggested that the potential for the technology to assist students in the writing process is often negated.

Design Principle 2: Writing is best understood as a social and collaborative act. The review of the research literature on academic writing in blended learning environments found that composition studies have important insights to offer (Babcock & Thonus, 2012; Graham et al., 2012; National Writing Project, 2010; Yancey, 1998). This body of literature asserts that writing is a social act and that notions of the solitary writer are misguided. Specifically, to help students gain writing competencies and a greater sense of self-efficacy, they need opportunities to learn through trial and error, whereby, rather than offering corrections, the instructor engages in a "collaborative dialogue" involving a process of "asking questions and making suggestions for discussion and consideration" (Babcock & Thonus, 2012, p. 112). This point is similarly echoed by those in the National Writing Project (2010) who argued that proven practices for teaching writing involve supporting students in "working in a community of writers to explore content; give, receive, and use feedback; and to reflect upon their growth over time" (p. 41).

The need to create more socially connected and collaborative learning environments is supported by the literature examining the specific pedagogical techniques that can best promote academic writing in blended learning environments. Specifically, research has found that blended learning environments are effective for engaging students in academic writing in that instructors are able to recreate the informal elements of in-class discussion and interaction in an online space (Tuomainen, 2016; Wijeyewardene et al., 2013). However, this body of research has found that face-to-face interactions (either in-person or via distance) are needed from time to time to provide reassurance. As a word of caution, although blended learning environments offer students significant affordances for group collaboration outside the formal classroom environment, a number of social factors can impede effective group work related to academic writing, including poor moderation of online social interactions and interpersonal issues that can emerge (Wijeyewardene et al., 2013).

Design Principle 3: Ongoing formative feedback loops should be built into the writing process. Closely related to the social and collaborative nature of writing, as noted by the quote from the National Writing Project (2010) above, this review of the research found that formative feedback is central to improving academic writing among undergraduate students (Birch, 2016; Chanock et al., 2009; Engin & Donanci, 2016; Wijeyewardene et al., 2013; Yancey,1998). In their examination of embedded academic writing instruction, Wingate, Andon, and Cogo (2011), for example, found that formative assessment was perceived by both students and teachers as the most important element to improve academic writing. This was similarly evident in a study by Yancey (1998), where one student noted the need for "the teacher to see the individual student's writing problem and to communicate that to the student, and the willingness of the student…to hear and understand the feedback, and … abstract essential elements from that process" (p. 67).

Heritage's (2010) review of the literature on feedback asserted that feedback designed to improve learning is most effective "when it is focused on the task and provides the student with suggestions, hints, or cues, rather than offered in the form of praise or comments about performance" (p. 5). In this regard, it is essential to provide students with clear assessment criteria that both their instructors and they can use as lens to provide and respond to feedback. Given the tremendous benefits of formative feedback, the research is clear that instructors identified this as the most labor-intensive aspect of writing instruction (Gunn, Hearne, & Sibthorpe, 2011). One solution to address this issue is to encourage students to assist one another in online discussion forums where the responsibility for feedback is thus shared and the instructor workload can be lessened (Wijeyewardene et al., 2013).

Design and Construction (Cycle 1)

Guided by these principles, the research team developed four interventions aimed at improving students' academic writing abilities in this first year B.Ed. course: 1) two interactive writing modules; 2) two online discussion forums, 3) two out-of-class writing tutorials, and 4) structured in and out-of-class opportunities for students to receive verbal feedback. These interventions were designed in relation to two course assignments, including the first assignment where students were asked to write a two-page synthesis of a peer-reviewed research article.

Interventions also sought to support the final assignment involving a seven-page research paper in which students had to take a position on a contemporary issue in education involving, for example, whether K-12 students with diverse learning needs should be taught inclusively or separately from mainstream students.

Interactive writing modules. Finding that no one technology has proven superior in augmenting undergraduate students' writing abilities (Scott et al., 2017), the researchers teamed up with the university's Writing Center to find a technological intervention that could be imbedded in the course Learning Management System [LMS] and that might offer affordances such as feedback loops and interactivity. After some investigating, the Writing Centre suggested using the interactive platform of Articulate Storyline (2018), which accommodates voice-overs, visual graphics, and video, thus allowing students to unpack examples and test their knowledge through embedded quizzes. Using this platform, the Writing Centre created two interactive writing modules for the course focused on 1) APA citation style, and 2) thesis statements and argumentation. The former guided students through examples of APA citation style and quizzed them on their ability to properly cite multiple academic sources both in-text and in the reference list. The latter prompted students to craft thesis statements alongside information, tips, and techniques for developing a strong scholarly argument. Students were asked to work through the first module prior to beginning assignment 1 and the second module prior to starting assignment 3.

On-line discussion forums. Noting the need for formative feedback loops, including the ways the time intensive nature of feedback can be lessened by creating opportunities for student-to-student interactions, the second writing intervention involved facilitating two on-line discussion forums, one for each assignment. In these discussion forums housed within the course's LMS, students were invited to post works in progress to garner formative feedback from the instructor and the TA, as well as other students. For assignment 1, students were asked to post their introduction. In the second forum, students were invited to post their thesis statement and three key arguments for their research-based position paper. In both instances, if students posted before a set time period, the instructor and TA provided feedback. In all cases, students were asked to provide feedback on their fellow students' posts.

Writing tutorials. Seeking to respond to Design Principle 2 in which writing is understood as a social and collaborative act, the third intervention involved two out-of-class writing tutorials, one for each of the course's major writing assignments. Within these tutorials, either the instructor or TA broke down the various elements of each assignment and additionally offered strategies and example sentence frameworks for how students could structure their writing. For example, in assignment one, students were introduced to the State, Explain, and Support (SES) framework as a way to introduce, develop and support, through at least one example, one of the key findings from the article. Students were asked to bring works in progress to these tutorials which were structured in such a way that time was allocated for the instructor and TA, as well as the students, to show and receive feedback on their work.

Additional feedback opportunities. Seeking to augment Design Principles 2 and 3, alongside these out of class writing tutorials, in class instruction included structured opportunities where students could receive feedback on works in progress from the instructor and TA. This included one-on-one sessions outside class time where either the instructor or the TA was able to respond to their questions and offer verbal feedback on the writing of individual students.

Evaluation and Reflection on Cycle One

Interactive writing modules. Student response to the online modules were mixed. When asked which of the four interventions was most helpful in improving their academic writing, none of the survey respondents listed the interactive modules. In this regard many students indicated that they either did not know the modules were available, or found them, as one student noted, "very long and not very interactive so it got confusing at times" (Y1SP-21). Similar responses revealed that some students were not clear on the module's applicability to course assignments. This sentiment was reflected in the following statement: "[[T]he modules are] not worth my time looking over unless [they] are explaining it to me in more depth because sometimes [they] just give this brief intro and then [they] don't explain it" (Y1FG1-1).

The instructor experience corroborated this latter perspective, observing that the modules had limited impact "because it was very passively done, I think, and there were very little levels of interaction" (Y1IFG-1). According to the instructor, this was partly due to the fact that there was no real incentive to work through the modules, as they were not built into an actual assessment task. While both students and instructors agreed that the APA interactive module was useful on a technical level, a number of students felt that the thesis and argumentation module wasn't "made with the assignments in mind; they were too disconnected" (Y1IFG-2).

Given this, some students forwarded positive feedback. In this regard, a number of students saw the modules as a helpful reference throughout all writing stages—a process unfamiliar to most of the class. One such student explained that "having a formula is helpful when trying to get started, especially if you have never

attempted something like it before" (Y1SP-6). Others appreciated having a "visual representation of the topics, as well as the slide presentation on citations. It was very helpful" (Y1SP-5). Similarly, another student commented, "It's nice to have the combination of the visuals and audio…I have problems with my vision" (Y1FG2-1). While not every student viewed or found the modules beneficial, there was praise for their availability for those who wanted them. For example, though one student sought other resources to help them engage in the writing process, they appreciated "the way the resources are there for people who need them…[Students] can have the resources right on D2L. That's pretty beneficial" (Y1FG2-2).

Online discussion forums. Students had a predominantly negative response to online discussion forums, which were ranked as the least helpful of all the interventions. Few students found the writing samples their peers posted on D2L as helpful. This could be attributed to that fact that many students reported hesitancy and nervousness in sharing feedback with each other. One student stated, "I felt like if I said something it might crush their feelings because you could tell they worked so hard on it" (Y1FG1-1). Those who were not concerned with giving feedback were often suspicious of the quality of the feedback they received. Some referred to the discussion forums as a "mixed bag" because "it depends on which peers you interact with. Everyone's coming from different vantage points, in terms of experience" (Y1FG2-1).

Despite this feedback, the instructor and TA were highly impressed with student contributions. The TA stated, "…[T]here was extensive feedback left, and I was surprised at the level of criticality used" (Y1IFG-1). The instructor further articulated that peer feedback afforded individuals who performed highly on assignments the ability to support their struggling peers. The instructor hoped part of the feedback process would be to "charge" these more successful students with the responsibility to communicate "and be able to pull out that assignment and say, '[H]ey, this is how I did well, and this is maybe where you can address some of those things'" (Y1IFG-1).

Out-of-class writing tutorials: Student response to the tutorials was overwhelmingly positive. Throughout the survey and focus group interviews, students referred to the tutorials as the most beneficial intervention for developing in their writing. The reasons for this rested on their flexibility and "because the prof made a variety of time slots" (Y1SP-24). Flexibility in offerings made the tutorials accessible to students with clustered, complicated, and often different schedules and afforded individuals with such disparaging circumstances the ability to seek support outside of regular class time. A number of students asserted, "[T]hey helped us refine our ideas and thesis , as well as come up with ways to

effectively incorporate evidence into our papers with proper citation" (Y1SP-5). Yet another student cited the communal nature of the tutorials as beneficial, explaining, "I just went there and listened, and I read other people's papers, and that's really helpful for me" (Y1FG2-2). Overall the social nature of the tutorials was a direct benefit to students which, in the case of one student, gave them the opportunity to "read over other people's papers and then give me inspirations from them, or you know, take out the good ideas or interesting points, or the way they write and incorporate into my own paper" (Y1FG2-2, p. 8). Even for students who had not crafted drafts of their assignments to share and workshop with their peers, attending tutorials eased feelings of nervousness and uncertainty as "you get the sense that people are having the same questions or uncertainties" (Y1FG2-1).

However, the instructor and TA perceived the out-of-class tutorials to be more helpful to already skilled writers. The TA observed, "I think it maybe helps some stronger writers already, but I think there's like another piece that has to be there for some of the weaker writers. It's not enough to have one tutorial" (Y1IFG-2). Both the instructor and TA concurred that stronger writers benefitted more by seeking technical information (e.g. specific information about APA formatting) in the tutorials. These students were already capable writers concerned with technical proficiency and maximizing grades, whereas struggling writers, as the TA noted, "need more of an intervention" (Y1IFG-1).

Individual consultations with instructor and TA. Students found in-person consultations extremely helpful in developing their writing skills. In this regard, several expressed gratitude towards the instructor and TA as "they were both willing to look over your work and send you feedback on what you should work on" (Y1SP-33). Specifically, students commented on the instructor's and TA's abilities to remain accessible throughout the semester, deconstruct their marked assignments, and provide more "valid" feedback on their writing than their peers. Reflecting on the feedback they received in individual consultations, one student explained, "I went to the office hours and spoke to them … I clearly made a connection with what I did wrong and how to improve for the next time" (Y1FG1-1). Another student, speaking more broadly about the support offered by the instructor and TA, commented, "[C]ompared to other classes, the amount of support provided in this class was heaps and bounds more than what I had received" (Y1SP-6). The instructor interview data further revealed that students made great use of office hours. Both the instructor and TA perceived this to be an effective strategy, illustrating how:

> We instructed them to come see either of us, and the bulk of my meetings, that was something that they said, 'You know what? Now I'm able to see

where my argument fell off, or what could have been better supported,' so that proved to be far more effective (Y1IFG-1).

Evaluation and Reflection on Cycle Two

Modification and improvement. In line with EDR's (McKenney & Reeves, 2012) emphasis on "multiple iterations of investigation, development, testing, and refinement" (p. 15), the research team analyzed the data from year one of the study to identify ways in which the various interventions could be modified and improved for the following year. As part of this process, the study team returned to their systematic review of the literature (Scott et al., 2017) to revisit key insights that could support their decision-making choices in relation to the refinements and modifications that were needed in year two. Along with making refinements and modifications to the various interventions introduced in the first iterative cycle, in the second year the study team also introduced three instructional videos informed by the flipped classroom model of instruction (Blair, Maharaj, & Primus, 2016).

Interactive modules. Although students had mixed reactions to the interactive modules, the study team decided to keep these in place. This decision was supported by both the positive feedback from some students and insights from the literature, including that of Nallaya and Kehrwald (2013), who argued that supporting writing in online spaces requires a level of accessibility via a combination of interactivity, audio, and discipline-specific material. However, it was clear from the data that modifications were needed. Seeking insight into what this should entail, the research team noted the work of Harris and Greer (2016), who found that without a student-centered approach involving a greater focus on the individual users rather than the system itself, online writing instruction often leads to limited skill acquisition, especially when delivered through an LMS.

The study team was unable, however, to modify the content of the modules themselves as funding to support the modification or creation of new modules was not available. Given this, in year two of the study the research team sought to better respond to the literature, which suggested that when introducing technological supports, there is a need for instructors to communicate the value of the technology, as well as how to best leverage the affordances a specific technology offers (e.g., Birch, 2016; Chanock et al., 2009). Based on insights from this same body of literature, the instructor sought to better link the modules to the two writing assignments by highlighting their use and value within class.

On-line discussion forums. Although the study team had great hopes for the discussion forums based on the idea that writing should be understood as a social act (Babcock & Thonus, 2012; Graham et al., 2012), the majority of student participants found peer feedback questionable at best. Given this, the literature is clear that such forums have significant affordances. Wheeler and. Wheeler (2009) posit, for instance, that the public nature of an LMS discussion forum increases accountability and may be responsible for the high volume and quality of postings. Birch (2016) likewise highlights the importance of a communicative environment that can be fostered in the discussion forums for bolstering students' confidence in their academic writing and ability to incorporate feedback into their work. Analysis of the qualitative data revealed, however, that students required greater assurances from instructors and peers that their feedback was valued in the writing process. Consequently, in the second year of the course, redesign efforts focused on creating a class activity in which the instructor modelled how to provide quality feedback in class. Students were also given time in class to post their work, as well as provide and respond to feedback from their peers.

Out-of-class writing tutorials and individual consultations with instructor and TA. Due to the very positive response in the survey, focus group, and instructor interview data, both the two out-of-class writing tutorials, as well as structured in and out-of-class opportunities for students to receive verbal feedback, were retained. This decision was supported by several studies that have documented the perceived importance and impact that small group and face-to-face interactions have on developing undergraduate students' writing skills (Allwardt, 2011; Engin & Donanci, 2016; Gunn et al., 2011). However, some modifications were made based on insights from the literature. Following Babcock and Thonus' (2012) advice, struggling students were specifically sought out for individual meetings to review their writing and provide additional support.

Instructional videos. While the out of class tutorials were retained, they were augmented by the addition of three online instructional videos created by the research team. The creation and deployment of these videos was informed by the flipped classroom model of instruction where the traditional classroom is inverted, emphasizing "interactive group learning activities inside the classroom and direct computer-based individual instruction outside the classroom" (Bishop & Verleger, 2013, p. 5). In this way time spent in the classroom can be dedicated to "tasks of a higher cognitive complexity" (Talbert, 2014, p. 362) by affording students time to engage in active, problem-based learning facilitated by the instructor.

A review of the literature prior to creating the videos suggested that both student and instructor

responses to the flipped classroom model has been generally positive (Cakiroglu & Ozturk, 2017; Findlay-Thompson & Mombourquette, 2014). The research suggests that despite the positive response by instructors and students, there is no conclusive evidence, however, to indicate that the flipped classroom model improves student performance (Blair et al., 2016). The research also highlighted that the flipped classroom requires significant time and material cost to effectively create, record, and edit out-of-class lecture material (Findlay-Thompson & Mombourquette, 2014). While there have been many studies experimenting with the impact of the flipped classroom in engineering (Velegol, Zappe, & Mahoney, 2015), mathematics (Talbert, 2014), and the sciences (Baepler, Walker, & Driessen, 2014), it is important to note that a review of the literature indicates there have been limited studies in applying this model to promote academic writing. Althoguh there were few cases of flipped classroom pedagogy used with academic writing in mind, and none within a Bachelor of Education program, the literature provided ample context for its use in this study.

Informed by this body of research, the research team saw the introduction of this intervention as a way to decrease the amount of class time spent providing writing instruction while also creating more time in the tutorial for students to receive feedback and ask follow-up questions around the specific struggles they are having (Balzotti & McCool, 2016; Engin & Donanci, 2016). Each instructional video was tailored to a specific assignment in the course and outlined strategies for students to improve their academic writing. For example, the first video tutored students on how to use university resources and Google Scholar to find a peer-reviewed journal article for Assignment 1. The second and third videos similarly provided guidance on writing strong introduction, body, and conclusion sections to an academic paper. Though some video content was designed with this class' assignments in mind, the information presented was intended to be useful for academic writing in any course context. Students were directed to watch the second and third videos prior to attending the two writing tutorials so less time could be spent on instruction and more on facilitating feedback from both the instructor and peers. Videos created by the researchers were posted online through YouTube, following precedents set in the literature (e.g., Findlay-Thompson & Mombourquette, 2014). Specifically, content around academic writing was shifted to videos for students to watch outside the classroom so that regular class time could be freed up to engage in learning activities where they worked with, and practiced, key insights presented in the videos (i.e., fully developing and elaborating on a key

idea from the research literature). These videos afforded students the ability to watch, pause, and revisit material in visual/audio formats at their convenience throughout the year.

Findings and Analysis Cycle 2

Interactive writing modules. As with year one of the study, reactions to the interactive modules were mixed. Overall, as indicated in the following responses, students identified the module focused on APA citations as the most helpful: "The APA module was really great straightforward, relevant, and overall very helpful" (Y2SP-9) and "[I]t gave me multiple different examples of citations to base my own off of (Y2SP-17). A number of students, however, once again highlighted a disconnect between the second module focused on thesis statements and argumentation and the course assignments. As one student noted, I "especially appreciated the citation help…, [but] you needed to weed through the other one to get what you needed" (Y2SP-18). Another student asserted the second module did not match the rubric and felt they had marks deducted "even though I followed what the modules says, when asked about it in person prof was unable to answer [and] admitted it is confusing" (Y2SP-16). Some students, as with year one, had difficulty locating the modules: "Sometimes I found them difficult to find, as (if I remember correctly) there were some support materials within the weekly sections/lecture slides" (Y2SP-13).

Online discussion forums. Despite researcher efforts to redesign the discussion forums (e.g. modeling proper feedback prior to directing students to provide peer-to-peer feedback), students continued to view discussion forums as not helpful and unimportant for academic writing. Throughout the course students posted when they were required to, and the forums were otherwise ignored. When asked, one student confessed, "I did it just only really because it was a requirement … I didn't put much thought into it" (Y2FG-8). Others expressed surprise when prompted to reflect on the discussion forums' impact on their writing. One student explained the following:

> I didn't realize that they were really supposed to—that it was intended to develop academic writing. I thought it was to get us talking about things … and that was why I didn't put much thought into the academic writing part, I didn't think that was the point of the discussion posts (Y2FG-7).

While many students found the discussion posts unimportant or did not see their contribution to academic writing, others found a more casual use for them in facilitating communication, sharing ideas, and practicing discussion of course topics in a less formal setting. As one student noted, "To be honest, I didn't

realize the purpose of the discussion posts was to improve academic writing skills—I thought it was to communicate ideas with others" (Y2SP-8). A similar sentiment was expressed by another student who noted that discussion posts were helpful in teaching them "how to discuss with somebody in like a constructive manner when you don't agree" (Y2FG-4).

Out-of-class writing tutorials and individual consultations with instructor and TA. Students continued to find the tutorials as central to their development as writers. Echoing comments from Cycle One, one student explained, "I am really glad I went in because the things I needed to tweak were things I would have been really mad if I lost marks on … [T]o get that actual feedback about my thesis statement was really helpful" (Y2FG-8). Many students emphasized the positive benefits that can accrue from the communal nature of the tutorials, which facilitated an environment that relieved students who thought they were alone in struggling to complete course writing assignments. One student wrote, "I was able to talk to other students and have their insights on what I had so far. They gave me their opinions and offered a sense of support as they were also in a similar dilemma, needing help" (Y2SP-15).

The social and more informal nature of the tutorials helped reduce students' sense of anxiety around the writing process. As one student noted, the small group nature of the tutorials helped them realize "that professors aren't there to get us, in reality they're also human beings that want all students to succeed" (Y2SP-12). The same student who was at first nervous, even frightened of approaching the instructor individually with questions, further expounded upon this humanizing element of the tutorials: "[E]ven going to the second tutorial I felt way more comfortable going in once I got over the whole intimidation thing" (Y2FG-4).

When asked how the tutorials could be improved, one student commented, "The only thing I would suggest would be to have more graduate students available to help, or smaller workshop groups!" (Y2SP-8). Others recommended making the tutorials longer to allow more direct feedback or offering more tutorials earlier in the semester before assignment deadlines approached. Further feedback on how later iterations of the course could be improved suggests that more work needs to be done to accommodate students who are not able to seek direct assistance outside of class time. For future offerings of the course, students additionally encouraged researchers to create more online content for those unable to receive additional on-campus support. In the case of one student, "The times of the workshops were not available to everyone, and I think additional resources such as websites or guides posted on D2L would've been helpful" (Y2SP-10).

Out class face-to-face feedback sessions were met with overwhelming approval from students. This nervousness was best articulated in the focus group data when one student explained, "I didn't know what to expect. And like, we had never really talked to [the instructor in a] one-on-one kind of thing … and then I went into his office and that was even scarier" (Y2FG-4). However, the same student also noted that going to the tutorials helped them overcome this initial nervous disposition.

Instructional videos. Overall, students responded very positively to the instructional videos. When asked about their effectiveness, for instance, one student noted how, after viewing the videos, they were "better able to clearly state my thoughts in my writing to get to the heart of what I wanted to say. The videos also gave me confidence in knowing that I was going in the right direction" (Y2SP-4). As reflected in the following statement, students particularly emphasized the videos' effectiveness in preparing them to attend the out-of-class tutorials: "[The videos] had a list of things for you to accomplish before you went to the tutorial so you knew what [the instructors] were going to look at for you and help you with" (Y2FG-4). Another student similarly observed how the videos "had everything, you know—an explanation [of] what we should come to the tutorial with, prepared, and … that was a good start. So you didn't just go in there with nothing or with two sentences" (Y2FG-5).

Students also noted the technological affordances of the videos, as well as the ability to access them any time they wanted. In this regard, one student stated, "I am an audible learner who needs to hear the instructions a few times before I grasp the concept" and felt that they "could replay the videos as often as required without feeling like I was bothering someone" (Y2SP-24). In a similar vein, another student commented, "I struggle writing introductions and conclusions, so it was incredibly helpful to be able to have a video with tips and tricks that I could pause and play as I needed" (Y2SP-8).

Implications for Theory and Practice

Findings from this study point to a number of key insights to guide the design of future interventions to improve the academic writing abilities of students working in blended learning environments. Building on, but also extending, the original design principles developed for this study, these insights involve the interrelated relationship among technology, pedagogy, and course design. Reinforcing the systematic review of the literature conducted for this study (Author et al., 2017), student perceptions suggest that the advantages technologies offer in improving the acquisition of academic writing skills do not reside solely within a particular technology itself, but rather with how students interact with the technology. In thinking through how best to leverage a technology's potential

findings from this study point towards a number of key considerations.

The first of these involves opportunities to develop intentional and structured opportunities to improve academic writing that places peer-to-peer formative feedback and dialogue at the forefront of design considerations. In both year one and year two, students observed that talking with their peers improved their writing. Specifically, the tutorials in particular offered a low-pressure environment for students to share their emergent writing and ideas in ways that helped them to realize that they were not alone in their struggles. Though students may have initially written alone, attending tutorials afforded students the kind of "collaborative dialogue" (Babcock & Thonus, 2012, p. 112) that allowed them to better develop their writing competencies and attain a greater sense of self-efficacy by learning through trial and error with their peers.

Student experiences of the interventions created for this study also supported insights from the greater research literature that highlights the need to weave ongoing formative assessment loops into course design (Birch, 2016; Chanock et al., 2009; Engin & Donanci, 2016; Wijeyewardene et al., 2013). To offset the time-intensive (and perhaps unrealistic) ideal of relying primarily on the instructor to offer detailed descriptive feedback to every student in a large lecture, students should be trained and equipped to undertake this work. While the data suggests that the social and communal nature of discussion forums in this course afforded students positive opportunities for idea sharing, in both cycles students found them less than helpful in promoting quality formative feedback. To make discussion forums a more productive space to promote formative feedback structures, findings from this study suggest that design efforts should specifically focus on greater scaffolding to model how to evaluate and provide feedback on writing. This could include, for example, showing examples of writing in class and then modeling how to use assessment criteria as a lens to identify ways the writing could be improved. Possibilities also exist to build peer-to-peer formative assessment into course assignments to ensure all students undertake the process.

In adopting such design strategies, however, this study suggests that writing interventions are most beneficial when they are introduced and understood as existing within a larger interconnected ecosystem designed to support not only academic writing, but also greater engagement with course content and ideas. Without this design mindset, in seeking to promote the acquisition of academic writing skills there is a danger of supplanting too much course time to the technical aspects of writing and thus losing out on needed time to engage course content. Thus, design considerations for improving academic writing should be introduced in ways that simultaneously improve overall academic literacy where students gain greater capacities for interpreting, analyzing, and synthesizing the insights and ideas they are encountering in the course. Further supporting design principle one developed at the advent of this study, student feedback on the interventions developed for this course suggest that while the use of discussion forums or interactive modules on their own do not generally lead to significant gains, introducing a variety of interventions across a variety of platforms can help leverage the affordances of both in-person and online resources.

Conclusion

While academic writing skills are key competencies that undergraduate students need to acquire during their degree studies—especially those who are in professional programs—the research literature is still at an emergent level of understanding about how this can be best promoted in blended learning environments. We hope that findings from this study can help to build on the important work that has been done in this area to inform instructors and course designers as they continue to develop new approaches for teaching academic writing for undergraduate students within higher education contexts.

Taken as a whole, this study suggests the need to shift attention away from a focus on the use of a single technology or set of technologies toward the specific pedagogical techniques and instructional design measures that are likely to be effective in relation to the material being studied. This includes the importance of develeeping collborative writing communities that involve intentional and structured opportunities for formative feedback, whether through peer-to-peer intractions or by the instructor. This study also points to a need to see the introduction of interventions to better teach academic writing as part of a larger ecosystem within the design of the course. In adopting a focus on the overall learning ecosystem, qualitative data from this study also indicates that academic writing can be best promoted when a variety of interventions are introduced in ways where they are used in conjunction with one another rather than in isolation. Guided by these insights, instructors and curriculum developers are afforded significant opportunities to design their courses around improving academic writing as an essential proficiency for university students, not only for their success in undergraduate and professional programs, but also as a key competency needed to thrive in a rapidly changing socio-economic landscape.

References

Allen, M., & Tay, E. (2012). Wikis as individual student learning tools: The limitations of technology. *International Journal of Information*

and Communication Technology, 8(2), 61–71. doi:10.4018/jicte.2012040105

Allwardt, D. (2011). Writing with wikis: A cautionary tale of technology in the classroom. *Journal of Social Work Education, 47*(3), 597–605. doi:10.5175/JSWE.2011.200900126

Articulate Storyline (2018). Retrieved from https://articulate.com

Babcock, R., & Thonus, T. (2012). *Researching the writing center*. New York, NY: Peter Lang.

Baepler, P., Walker, J. D., & Driessen, M. (2014). It's not about seat time: Blending, flipping, and efficiency in active learning classrooms. *Computers & Education, 78*, 227-236.

Balzotti, J., & McCool, L. (2016). Using digital learning platforms to extend the flipped classroom. *Business and Professional Communication Quarterly, 79*(1), 68–80. doi:10.1177/2329490615606497

Bartlett, T. (2003). Why Johnny can't write, even though he went to Princeton. *Chronicle of Higher Education, 49*(17), A39-A40. Retrieved from https://eric.ed.gov/?id=EJ661292

Birch, H. J. S. (2016). Feedback in online writing forums: Effects on adolescent writers. *Teaching/Writing: Journal of Writing Teacher Education, 5*(1), 74–89. Retrieved from https://tspace.library.utoronto.ca/bitstream/1807/75571/1/Feedback%20in%20Online%20Writing%20Forums.pdf

Bishop, J. L., & Verleger, M. A. (2013). *The flipped classroom: A survey of the research*. Paper presented at the 120th ASEE Annual Conference & Exposition, Atlanta, GA.

Blair, E., Maharaj, C., & Primus, S. (2016). Performance and perception in the flipped classroom. *Education and Information Technologies, 21*(6), 1465-1482. doi:10.1007/s10639-015-9393-5

Boice, R. (1990). *Professors as writers: A self-help guide to productive writing*. Stillwater, OK: New Forums Press.

Cakiroglu, U., & Ozturk, M. (2017). Flipped classroom with problem-based activities: Exploring self-regulated learning in a programming language course. *Educational Technology & Society, 20*(1), 337-349. Retrieved from https://www.jstor.org/stable/jeductechsoci.20.1.337

Chanock, K., D'Cruz, C., & Bisset D. (2009). Would you like grammar with that? *Journal of Academic Language & Learning, 3*(2), 1–12. Retrieved from http://journal.aall.org.au/index.php/jall/article/viewArticle/70

Defazio, J., Jones, J., Tennant, F., & Hook, S. (2010). Academic literacy: The importance and impact of

writing across the curriculum--a case study. *Journal of the Scholarship of Teaching and Learning, 10*(2), 34-47. Retrieved from https://eric.ed.gov/?id=EJ890711

Dishaw, M., Eierman, M., Iversen, J., & Philip, G. (2011). Wiki or word? Evaluating tools for collaborative writing and editing. *Journal of Information Systems Education, 22*(1), 43–54. Retrieved from https://eric.ed.gov/?id=EJ931449

Ellis, M. J. (2011). Peer feedback on writing: Is on-line actually better than on-paper? *Journal of Academic Language & Learning, 5*(1), A88–A99. Retrieved from http://journal.aall.org.au/index.php/jall/article/view/130/96

Engin, M., & Donanci, S. (2016). Instructional videos as part of a 'flipped' approach in academic writing. *Learning and Teaching in Higher Education: Gulf Perspectives, 13*(1), 1–8. doi:10.18538/lthe.v13.n1.231

Fallahi, C. R., Wood, R. M., Austad, C. S., & Fallahi, H. (2006). A program for improving undergraduate psychology students' basic writing skills. *Teaching of Psychology, 33*(3), 171-175. doi:10.1207/s15328023top3303_3

Findlay-Thompson, S., & Mombourquette, P. (2014). Evaluation of a flipped classroom in an undergraduate business course. *Business Education & Accreditation, 6*(1), 63-71. Retrieved from https://ssrn.com/abstract=2331035

Goddard, P. (2002). Promoting writing among psychology students and faculty: An interview with Dana S. Dunn. *Teaching of Psychology, 29*(4), 331-336. doi:10.1207/S15328023TOP2904_16

Graham, S., Gillespie, A., & McKeown, D. (2012). Writing: Importance, development, and instruction. *Reading and Writing, 26*, 1–15. doi:10.1007/s11145-012-9395-2

Gunn, C., Hearne, S., & Sibthorpe, J. (2011). Right from the start: A rationale for embedding academic literacy skills in university courses. *Journal of University Teaching and Learning Practice, 8*(1), 1-10. Retrieved from https://ro.uow.edu.au/jutlp/vol8/iss1/6

Harris, H. S., & Greer, M. (2016). Over, under, or through: Design strategies to supplement the LMS and enhance interaction in online writing courses. *Communication Design Quarterly, 4*(4), 46-54. doi:10.1145/3071088.3071093

Heritage, M. (2010). *Formative assessment and next-generation assessment systems: Are we losing an opportunity*. Los Angeles, CA: National Center for Research on Evaluation, Standards, and Student Testing (CRESST).

Holtzman, J. M., Elliot, N., Biber, C. L., & Sanders, R. M. (2005). Computerized assessment of dental student writing skills. *Journal of Dental*

Education, *69*(2), 285-295. Retrieved from http://www.jdentaled.org/content/69/2/285

Kopcha, T., McGregor, J., Shin, S., Qian, Y., Choi, J., Hill, R., Mativo, J., & Choi, I. (2017). Developing an integrative STEM curriculum for robotics education through educational design research. *Journal of Formative Design in Learning*, *1*(1), 31-44. doi:10.1007/s41686-017-0005-1

Manzo, K. K. (2003). NAEP results underscore need to up writing instruction. *Education Week*. Retrieved from https://www.edweek.org/ew/articles/2003/08/06/43naepwrite.h22.html

McKenney, S., & Reeves, T. (2012). *Conducting educational design research*. Abingdon, IL: Routledge.

Miles, M., Huberman, M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Thousand Oaks, CA: Sage.

Nallaya, S., & Kehrwald, J. L. (2013). Supporting academic literacies in an online environment. *Journal of Academic Language and Learning*, *7*(2), 79-94. Retrieved from https://hdl.handle.net/1959.8/154665

National Writing Project. (2010). *Because digital writing matters*. San Francisco, CA: Jossey-Bass.

Saidy, C. (2015). We learned what? Pre-service teachers as developmental writers in the writing methods class. *Teaching/Writing: The Journal of Writing Teacher Education, 4*(1), 108–124. Retrieved from http://scholarworks.wmich.edu/cgi/viewcontent.cgi?article=1119&context=wte

Scott, D., Ribeiro, J., Burns, A., Danyluk, P., & Bodnaresko, S. (2017). *A review of the literature on academic writing supports and instructional design approaches within blended and online learning environments*. Calgary, CA: University of Calgary. Retrieved from http://hdl.handle.net/1880/51960

Stein, M., Dixon, R. C., & Isaacson, S. (1994). Effective writing for diverse learners. *School Psychology Review*, *23*(3), 392-405. Retrieved from http://psycnet.apa.org.ezproxy.lib.ucalgary.ca/record/1995-19386-001

Stetson, S. (2016). Building up to collaboration: Evidence on using wikis to scaffold academic writing. *Journal of Academic Writing*, *6*(1), 134–144. doi:10.18552/joaw.v6i1.288

Talbert, R. (2014). Inverting the linear algebra classroom. *PRIMUS*, *24*(5), 361-374. doi:10.1080/10511970.2014.883457

Tuomainen, S. (2016). A blended learning approach to academic writing and presentation skills. *International Journal on Language, Literature and Culture in Education, 3*(2), 33–55. doi:10.1515/llce-2016-0009

Velegol, S. B., Zappe, S. E., & Mahoney, E. (2015). The evolution of a flipped classroom: Evidence-based recommendations. *Advances in Engineering Education*, *4*(3), 1-37.

Wang, F., & Hannafin, M. J. (2005). Design-based research and technology-enhanced learning environments. *Educational Technology Research and Development, 53*(4), 5-23. doi:10.1007/BF02504682

Wheeler, S., & Wheeler, D. (2009). Using wikis to promote quality learning in teacher training. *Learning, Media and Technology*, *34*(1), 1–10. doi:10.1080/17439880902759851

Wijeyewardene, I., Patterson, H., & Collins, M. (2013). Against the odds: Teaching writing in an online environment. *Journal of Academic Language & Learning, 7*(2), A20–A34. Retrieved from http://journal.aall.org.au/index.php/jall/article/viewArticle/269

Wingate, U., Andon, N., & Cogo, A. (2011). Embedding academic writing instruction into subject teaching: A case study. *Active Learning in Higher Education*, *12*(1), 69–81. doi:10.1177/1469787410387814

Yancy. K. B. (1998). *Reflection in the writing classroom*. Logan, UT: Utah State University Press. Retrieved from https://digitalcommons.usu.edu/usupress_pubs/120/

Yang, Y., & Durrington, V. (2010). Investigation of students' perceptions of online course quality. *International Journal on E-Learning, 9*(3), 341–361. Retrieved from https://www.learntechlib.org/p/29460/

DAVID SCOTT is an Assistant Professor in the Werklund School of Education at the University of Calgary where he is Director of Student Experiences for the community-based pathway. David's research explores how educators make sense of officially mandated curriculum shifts. As part of this work, David has published over fifteen peer-reviewed journal articles, including a recent publication around the effificay of inquiry-based approaches to education. He is currently co-investigator on a 2.5 million Government of Canada SSHRC Partnership Grant entitled: *Thinking Historically for Canada's Future.* Recognized with the Werklund Teaching Excellence Award in 2017, David teaches in the areas of social studies education and design-based thinking.

SAM ULMER-KROL is a graduate student enrolled in the Master of Arts in Educational Research program within the Werklund School of Education at the University of Calgary. His research examining student experiences and understandings of a General Education program at a mid-sized university in Western Canad is funded by the prestigious Social Sciences and Humanities Research

Council of Canada Scholarship. In addition to his studies and research, he is employed by Academic Advising Services at Mount Royal University in Calgary.

JASON RIBEIRO is the Director of Strategy at Calgary Economic Development and is simultaneously completing his Ph.D. research at the University of Calgary (funded by the prestigious SSHRC Bombardier Canada Graduate Scholarship). His research aims to assist organizational leaders in shaping, leading, and sustaining innovation efforts in cross-sector partnerships. He is an active member of the academic community, and has taught over 600 university students, written 13 scholarly works, and delivered over 20 national/international conference presentations. He also holds a Master's degree from Brock University and undergraduate degrees from McMaster University and York University.

Analyzing Factors Influencing the Paragraph Organization in English Language Writing of Intermediate Students

Kamran Akhtar Siddiqui
Sukkur IBA University

Writing in English holds great importance throughout the world, especially when it comes to academic and professional excellence. Therefore, writing in English is given due status in Pakistan too. However, despite learning English for years, Pakistani students face difficulty in writing like other foreign language learners. One of the major issues in their writing is organization of ideas in a paragraph to convey the desired sense. The present qualitative study was, thus, conducted to analyze the factors that influence paragraph organization in the English language writing of students at the intermediate level. In this regard, semi-structured interviews were conducted from six participants belonging to different cities, and their writing samples were also collected and were later analyzed using a thematic analysis technique. The findings reveal that rote learning, more focus on grammar, and surface level feedback from teachers were the key factors at play. Hence, the students are unable to produce a well-organized text.

English is a "lingua franca" of the present world (Conrad & Mauranen, 2003). It is not only the language of trade and commerce, but also of education, science and technology, and many other fields of life. Especially in the domain of education, it has become a medium of instruction, language of research, and a means of meaningful transfer of knowledge (Mahboob, 2014). Keeping in view its huge importance across the globe, it is highly encouraged in Pakistan also. English is not only the official language of Pakistan, but also the medium of instruction throughout the country (Coleman, 2010).

This rapid growth of English language use across the globe has necessitated competence in all four areas of language- reading, writing, listening, and speaking. But studies suggest that L2 learners have to deal with countless problems in learning this foreign language. A large number of students face difficulties in writing because it demands presentation of ideas in a well-planned and well-organized way (Braine & Yorozu, 1998).

Since writing is a productive skill which demands great effort, writing something in foreign language or L2 becomes a much more demanding job. Learners, especially those learning English as a second language, face great trouble writing something worthy of reading. Similarly, students of Pakistan experience difficulties in learning the English language, especially mastering writing skills. Research studies suggest that students at various levels in Pakistan make serious mistakes in spelling, sentence structure, tense, punctuation and paragraph structure (Javed, Juan, & Nazli, 2013). Though the other problems learners face in learning English language have been widely researched, little attention has been given to the area of paragraph organization, especially at the intermediate level. Students who join public sector universities come from different academic backgrounds. It has been observed that those who come from government institutions—i.e., they have done their Matriculation and Intermediate from a government school or college—suffer more in writing classes. Also, no research has been conducted to figure out the reasons leading to this problem for intermediate students.

Hence, the present paper is designed to analyze the factors that influence paragraph organization in English language writing of intermediate students in Sukkur, Sindh, Pakistan.

Problem Statement

Writing is one of the key areas when it comes to language proficiency. A language learner is supposed to be good at written communication so that he can express his thoughts, ideas and feelings through words (Alfaki, 2015). However, in Pakistan, many students face great trouble in writing even a proper paragraph (Farooq, Uzair-Ul-Hassan, & Wahid, 2012), and the students coming from government institutions experience greater trouble. Their troubles increase manifold as they enter universities where they are supposed to write long essays and assignments extensively in their four-year degree programs or, more importantly, get a competitive job. The students struggle with getting their ideas in paragraph form when they are asked to write on any given topic. This problem of students is of paramount importance given the troubles they face later in their lives.

Since resolution of this problem for students is imperative, this study aims to analyze the factors that influence paragraph organization in the English language writing of intermediate students in the district of Sukkur.

Research Question and Sub-questions

The major research question is, "What are the factors that influence the paragraph organization in

English language writing of intermediate students in Sukkur?" The sub-questions are the following:

1. What pedagogical approaches teachers use to teach paragraph in intermediate classes?
2. How do the teachers provide feedback to students to improve their paragraph writing?

Literature Review

What is writing? Writing is one of the most important skills of a language. Daniels and Bright (1996) describe writing as a system of symbols which represent an expression of the writer and it must be clear to the reader without the writer's intervention. However, writing is not that much simple. According to Nunan (2003), writing is a physical as well as a mental activity. It is physical in that the writer uses some medium to express his or her ideas or thoughts, and it is mental in that it requires generation of ideas and thinking about their expression and their organization into sentences and paragraphs in a way that the reader can easily understand the text. Hence, writing needs to be effective by having accuracy of grammar and vocabulary, appropriateness of sentence-structure and subject-matter, and development and organization of ideas (Alfaki, 2015). Another researcher states that writing skill demands that the thoughts be presented in well-structured and well-organized way (Javed et al., 2013).

What is a paragraph? When it comes to structure and organization of a text, the paragraph is unarguably the most important thing to be discussed. Words come together to form sentences; sentences join together to make a paragraph; and paragraphs combine together to form letters, reports, essays, and other larger texts (Sattayatham & Ratanapinyowong, 2008). Thus, the importance of paragraph is pivotal in any text. A paragraph consists of a topic sentence, supporting sentences or details and a closing sentence (O'Donnell & Paiva, 1993), and all these sentences must relate to one idea only (Rajatanuml, 1988). A topic sentence can be defined as a sentence that states the main idea of the whole paragraph and usually taking the first place in a paragraph. Then it is followed by supporting sentences which provide details that support the main idea in an appropriate way. The paragraph comes to a close with a final sentence that can be a restatement of the topic sentence or summary of the whole paragraph (Kemper, Meyer, Van Rys, & Sebranek, 2018).

Problems students face in writing. Research suggests that writing something worthy of reading is a tough task for native and non-native learners alike because one has to be careful about a number of things ranging from spelling to organization of text (Rass, 2015). But these problems are severe for the non-native speakers of the English language. A study conducted in Bangladesh found that students have problems in writing in terms of spelling, punctuation, vocabulary, grammar, sentence structure, and organization of ideas (Afrin, 2016). A similar study conducted in Israel revealed that sentence structure and paragraph organization were the major problems of Arab students in writing (Rass, 2015). In addition, one study published in Sudan showed that students have various problems in organization such as not differentiating between topic and closing sentences, not developing a paragraph properly, or not focusing on one idea in their paragraph.

Similarly, Pakistani students also face great trouble in writing in English. In research conducted in Khyber Pakhtukhuwa (a province of Pakistan), it was found that even postgraduate students made mistakes in subject-verb agreement, verb tense, inappropriate vocabulary, and spelling (Jamil, Majoka, & Kamran, 2016). A study conducted in Lahore on college-level students stated that learners of a second language face difficulties in writing a "well-organized" presentation of information (Farooq et al., 2012). The same study highlighted spelling, punctuation, capitalization, the task of thinking in Urdu (the national language of Pakistan) and then translating the thought, and technicalities of grammar as major challenges faced by students in Pakistan. A similar research study done in Karachi showed that undergraduate learners of English face issues of vocabulary, syntax, content selection, topic sentence, and organization (Fareed, Ashraf, & Bilal, 2016).

Factors that influence writing skill. A literature review regarding factors influencing the writing skills of ESL learners in Pakistan reveals that writing skill of students is influenced by two key factors: teacher's pedagogy and teacher feedback. The teachers' lack of proper training, their traditional pedagogy, little or no (constructive) feedback, and their inability to motivate students for writing are a few factors related to teachers (Fareed et al., 2016).

Conceptualizing Pedagogy and Teacher Feedback

Pedagogy. Pedagogy is a broad term which covers the "interactions between teachers, students, and the learning environment and the learning tasks" (Thomas, 49). In addition to the relation between teachers and students, it also encompasses the instructional approaches teachers implement in the classroom setting (Thomas, 2016).

Pedagogy can further be divided into three broad categories such as teacher-centered, student-centered, and learning-centered. In teacher-centered pedagogy, the teacher is the center of the learning process, and all methods such as "whole-class lecture, rote memorization, and chorus answers (i.e., call-and-response)" revolve around his or her presence and input (Mascolo, 2009). The learners are on the receiving end because of the assumption of them having no prior knowledge. Hence, they play a passive role throughout the process.

On the other hand, a learner-centered pedagogical approach stresses learners' active role in the learning process. It states that learners have prior knowledge and experiences on the basis of which they can create new knowledge. That is why this method is also termed a constructivist approach to teaching (Cakir, 2008). Constructivism refers to the notion that learners construct their own knowledge based on their experiences and actions they perform in their environment (Mascolo, 2009). Thus, the role of a teacher in this approach is that of a facilitator who creates an environment for learning to happen. Presentations, small group discussions, role-plays, etc., are common practices in a student-centered classroom.

The third category of pedagogy is learning-centered pedagogy which reconciles both teacher-centered and learner-centered ideologies. Keeping learning at the focal point, it states that both approaches can be effective for the sake of learning. The activities are not designed to keep students active. Rather, they are designed to support the desired learning (Alenoush Saroyan, 2004).

Teacher feedback. Writing is not only about putting the letters together to form words, then combining them to make sentences and arranging them to become paragraphs, but also about choosing appropriate vocabulary, forming meaning, and organizing ideas. Also, feedback helps learners learn efficiently as it influences learning and subsequently achievement (Hattie & Timperley, 2007).

Feedback is defined as "[the] post-response information which informs the learners on their actual states of learning and/or performance in order to help them detect if their states correspond to the learning aims in a given context" (Narciss, 2008). For a written work, the feedback is given on the content or ideas, grammatical structures, spelling, and organizational aspects of the writing assignment (Lee, 2005), but the views of researchers are divergent as to what aspect should receive more focus.

Educators make use of feedback to communicate the strengths and weaknesses of the writing of the students (McGrath, Taylor, & Pychyl, 2011). Peer feedback and teacher feedback are two types a student receives on his or her written work. Peer feedback is defined as comments on strengths and weaknesses which students provide to one another on their work (Kroll, 2001). Although both forms of feedback are practiced in classrooms, studies reveal that teacher feedback is preferred because students hold the teachers' ability higher in providing the most suitable feedback (Hyland & Hyland, 2001). Studies also suggest that teachers' responses can be more accurate and appropriate to improve the students' language expertise (Cresswell, 2000).

Teachers provide feedback to students in both oral and written form. Each form of feedback has different advantages. Researchers state that written feedback from teachers allows students to make better modifications in their writing because teachers writes comments and explanations on students' work (Susanti, 2013). However, oral feedback from teachers allows students to have face-to-face interaction with them, helps them get explanations, and allows them to ask the teacher questions about certain confusions (Grabe & Kaplan, 2014). But that is only possible when the learner is active and not passive during the process of feedback (Goldstein & Conrad, 1990).

Studies conducted in other contexts suggest that teachers' pedagogy and their feedback play vital roles in the development of writing skills of students. Ahmad, Khan, and Munir (2013) reported use of traditional teaching methods by teachers to teach writing at a secondary level in Khyber Pakhtunkhuwa, Pakistan. Fareed et al. (2016) also highlighted a pedagogic approach to writing and ineffective feedback as two major factors influencing the writing of students in Pakistan. However, there is no study that looks at writing, especially paragraph organization, in the writing of intermediate students in the context of Sukkur, Pakistan.

To summarize, writing is one of the most important skills and requires an individual to be good at expressing his/her ideas, thoughts, and experiences in an appropriate and effective way. However, students across the world face problems in writing with regard to accuracy of sentence structure, mechanics of language, and organization of ideas. Similarly, learners of the English language in Pakistan experience these difficulties, and paragraph organization has been one of the major issues. Studies revealed that teachers' pedagogy and the feedback the teacher provides to the learners are two of the many factors that affect the writing skills of students at the undergraduate level.

Methodology

The present study uses a qualitative research approach to obtain an in-depth understanding of the factors influencing paragraph organization in the English language writing of intermediate students in Sukkur, Pakistan.

Context

The intermediate level was selected because this level determines the academic and/or professional careers of students. In the context of Sukkur IBA University, six students in the Foundation semester and coming from different cities of Sindh were selected for this research, mainly for two reasons. First, the researcher studies at the university, which makes it easy for him to access participants and collect the data

without any hindrance. Second, Sukkur IBA University is considered to be the best university in the region and provides free and quality education to all knowledge-seekers. Students from far-flung areas join this institute for various degree programs.

Moreover, the choice of Foundation (also known as zero) semester was made because of its generic, multifaceted, and transitional nature. Students of this semester come from pre-medical, pre-engineering, and commerce backgrounds to get an education in English, Math, and Information and Communication Technologies (ICT) only. All of them, regardless of their academic background, go through a common subjective test of all three subjects to get a permanent seat in the departments of their choice.

Thus, the sample was diverse in terms of gender, age, religion, and academic backgrounds.

Sampling

The technique of purposive sampling was employed to select a sample of six students (both male and female) from the Foundation semester students who had recently passed their Intermediate and had also done Matriculation from government institutes of Sindh province. Purposive sampling allows the researcher to choose participants on the basis of the qualities they possess because such choice suits the purpose of the study (Etikan, Musa, & Alkassim, 2016). Hence, purposive sampling enabled the researcher to get a sample that was relevant for this research in terms of diversity in the gender, age, religion, academic backgrounds and hometowns.

A questionnaire was administered to select a purposeful sample for the study. Since all respondents see the questions from the same angle, that uniformity makes a questionnaire an effective tool to collect demographic information such as facts about the participants. Although questionnaires have low response rates, studies suggest that questionnaire is the best way to collect such data (Fink, 2015).

Data Collection Tools

Writing sample. The first tools used for the research purposes were the writing samples of participants to see how they constructed topic sentences, how they developed the samples with supporting details, and how they concluded the samples. This documentary review is a "systematic data collection" (Bretschneider, Cirilli, Jones, Lynch, & Wilson, 2017) that enables the researcher to see the areas very closely in which the students frequently make mistakes.

Semi-structured interviews. The major tool was a semi-structured interview to get the views of each selected participant. A semi-structured interview is a tool which allows the researcher to interview the participant(s) to elicit information from them by asking predetermined questions. It allows the participants to highlight the issues that are of importance to them (Longhurst, 2003). Therefore, this tool was used to get a holistic view of the participants' problems in paragraph organization.

In order to conduct this interview, an interview guide was prepared which contained questions on students' knowledge about paragraph organization, the strategies teachers used to teach them to write a paragraph, and the kinds of feedback they received from teachers and in what ways (see Appendix for interview guide).

Data Analysis

A thematic analysis technique was used to figure out the themes that evolved from the interview transcripts and samples. The method of thematic analysis is used for identification, analysis, and reporting of patterns emerging from the data (Braun & Clarke, 2006). Studies define thematic analysis as the process that enables the researcher to identify patterns in the qualitative data and develop themes from it. Thematic analysis is reliable in qualitative research because it lets the researcher explore and analyze individual experiences and perceptions and make meaning of that data (Maguire & Delahunt, 2017).

Findings

Interviews

Interviews were conducted from six participants: two females and four males. The interviews were conducted and recorded after seeking the consent of the participants. The thematic analysis of the interview data uncovered the following themes.

Rote learning. The interviews with the research participants revealed that students were asked to copy the text written on the blackboard by the teachers themselves. The students were just supposed to cram [*sic*] the paragraphs or essays and reproduce the same during tests. One of the participants, coded as 4MMLK said, "Teacher would make us note down the paragraph from the (black) board, then we were asked to learn the paragraph by heart." Another student (2FMSK) commented, "At the time of tests or exams, we were given topics of the essays which we had already done in the class or remembered from notes, and we used to write them to pass the (class) test."

More focus on grammar. Another theme that emerged out of the transcriptions was that the teachers put more emphasis on grammatical corrections rather than guiding students in development and organization of ideas. Only one participant (1MMKH) said that he or she was

given some liberty to write on their own and were encouraged to produce something original. Upon further probing, it was found out that their English teacher was young and recently graduated which presumably made the situation different from the rest. However, the student said that the teacher would make their copies heavily corrected because their texts were replete with (grammatical) errors. It can be inferred from this that the teachers paid very little attention to organization of their thoughts in paragraphs.

Little or no feedback. As the above findings state, the teachers didn't make the students write on their own and instead made them copy texts from boards. This rules out the element of real feedback on writing. However, a few comments from the students implied that even though the teachers at times were ready to give feedback, it was very difficult for them to reach out to all the students in class because of over-crowded classes. A student (1MMKH) said, "We used to sit on the last seat, and by the time teacher could reach us for checking, the bell would ring and he had to leave for the other teacher to step in." This shows that students didn't receive individual attention from teachers regarding their work. Another participant (6MHMK) said that if he or she would go to the teacher's office or staff room but could hardly get any written feedback. The teacher would coldly check the work and return it, saying he or she was busy.

Written Work of Students

Although written work, especially writing paragraphs, has been a part of the English course over the years, students still make mistakes, especially in the organization of their ideas in a paragraph. In order to understand their errors on paragraph level, some thirty students were made to write a paragraph on a narrative topic "My first Day at University," and their write-ups were analyzed in the areas of topic sentence, concluding sentence, and supporting details, which constitute three elements of the paragraph.

Unclear topic sentences. The topic sentence is usually the first sentence of the paragraph and it states the main idea of the whole paragraph. The analysis of the students' writings revealed that students were unaware of this fact. They were unable to start with a statement that indicates the topic as well as the writer's opinion on that. A few examples of topic sentences from students' paragraphs are given below.

a. It was bad but not much.
b. I was surprised when I entered the university.
c. My background is of government school and college.
d. When I passed my intermediate, I was thinking about that how will be the environment of university.

Supporting details. Since the students didn't have a good opening to the paragraph, they struggled with having clear and well-directed supporting details of the respective topic sentences. They provided more and more content in the paragraphs rather than establishing the already-mentioned idea. This could be witnessed from the long sentences and the over-use of "and," "also," "so," and "then." Besides, little or no use of appropriate transitional words reflect inadequacy of their skill to construct well-organized and connected paragraphs. One of the samples read, "I meet with a girl she's name is sana and sana is also my roommate and she is also in the class… Then we go to visit seniors and then we got to cafetaria and drinks juice and then we go to hostle."

Concluding sentences. The majority of the students' written work had no appropriate concluding statement. Concluding sentences were either more general or deviated from the start of the paragraph or its topic, or they ended abruptly on the last detail in the list. And, once again, there were no transitional words to signal the concluding sentences.

a. "He motivates us for studying and learning."
b. "I met with many peoples who were excited and nervous like me and I got succeeded to make very few friends."
c. "After a few minutes a boy named Vikran came towards and asked me about my name and where I am from, I told him."
d. "Different places tells about places."

Discussion

The findings suggest that the teachers teaching at the college level lack efficient training and skills to teach a simple writing process. Moreover, the teachers do not have relevant degrees in English Language Teaching, especially writing skills. The same findings were observed by Ahmed (2010) and Sajid and Siddiqui (2015). That is why teachers are unable to impart writing skills and strategies to learners (Nik, Sani, Kamaruzaman, & Hasbollah, 2010). Thus, students are used to copying and reproducing paragraphs, and this tradition gets reinforcement because of the exam practices prevailing in the country. This teacher-centered approach doesn't let the students think about any topic on their own and write by themselves.

Moreover, teachers do not give time to students outside the class because when they are at college, they tend to be busy in social activities, or after college they work in different tuition centers to earn more and cater to their needs. Similar sorts of findings were reported by Ahmed (2010) in his study. Even if the teachers provide feedback, they do not consider the level or needs of the learners (Fareed et al., 2016). The feedback is so superficial that only language errors can be

rectified, and not the ideas. Hence, this feedback doesn't fulfil the true purpose of teacher feedback.

Conclusion

The research at hand was conducted with the aim of analyzing the factors that influence the paragraph organization in the English language writing of intermediate students. Keeping in view the findings of the research, it can be concluded that teachers' pedagogy and teacher feedback have great influence on the paragraph organization in the English language writing of the intermediate students. The students are unable to construct well-organized and original paragraphs because the teachers are more teacher centric in their pedagogical approach and provide negligible feedback for the improvement of learners' writing skill. Although the findings of the study can be generalized for the students at the intermediate level, the small sample stands as the limitation of the study.

References

Afrin, S. (2016). Writing problems of non-English major undergraduate students in Bangladesh: An observation. *Open journal of social sciences, 4*(3), 104.

Ahmad, N., Khan, F. N., & Munir, N. (2013). Factors affecting the learning of English at secondary school level in Khyber Pakhtunkhwa, Pakistan. *International journal of English language and Literature studies, 2*(2), 95-101.

Ahmed, A. H. (2010). Students' problems with cohesion and coherence in EFL essay writing in Egypt: Different perspectives. *Literacy Information and Computer Education Journal, 1*(4), 211-221.

Alenoush Saroyan, C. A. (2004). *Rethinking teaching in higher education: From a course design workshop to a faculty development framework*. Sterling, VA: Stylus Publishing, LLC.

Alfaki, I. M. (2015). University students' English writing problems: Diagnosis and remedy. *International Journal of English Language Teaching, 3*(3), 40-52.

Braine, G., & Yorozu, M. (1998). Local area network (LAN) computers in ESL and EFL writing classes: Promises and realities. *JALT Journal, 20*(2), 47-59.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology, 3*(2), 77-101.

Bretschneider, P. J., Cirilli, S., Jones, T., Lynch, S., & Wilson, N. A. (2017). *Document review as a qualitative research data collection method for teacher research*. Newbury Park, CA: SAGE Publications, Ltd.

Cakir, M. (2008). Constructivist approaches to learning in science and their implications for science pedagogy: A literature review. *International Journal of Environmental and Science Education, 3*(4), 193-206.

Coleman, H. (2010). *Teaching and learning in Pakistan: The role of language in education*. Islamabad, Pakistan: The British Council.

Conrad, S., & Mauranen, A. (2003). The corpus of English as lingua franca in academic settings. *TESOL Quarterly, 37*(3), 513-527.

Cresswell, A. (2000). Self-monitoring in student writing: Developing learner responsibility. *ELT Journal, 54*(3), 235-244.

Daniels, P. T., & Bright, W. (1996). *The world's writing systems*. Oxford, UK: Oxford University Press on Demand.

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1-4.

Fareed, M., Ashraf, A., & Bilal, M. (2016). ESL learners' writing skills: Problems, factors and suggestions. *Journal of Education and Social Sciences, 4*(2), 81-92.

Farooq, M. S., Uzair-Ul-Hassan, M., & Wahid, S. (2012). Opinion of second language learners about writing difficulties in English language. *South Asian Studies 27*(1), 183-194.

Fink, A. (2015). *How to conduct surveys: A step-by-step guide*. Newbury Park, CA: Sage Publications.

Goldstein, L. M., & Conrad, S. M. (1990). Student input and negotiation of meaning in ESL writing conferences. *TESOL Quarterly, 24*(3), 443-460.

Grabe, W., & Kaplan, R. B. (2014). *Theory and practice of writing: An applied linguistic perspective*. Abingdon, UK: Routledge.

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81-112.

Hyland, F., & Hyland, K. (2001). Sugaring the pill: Praise and criticism in written feedback. *Journal of Second Language Writing, 10*(3), 185-212.

Jamil, S., Majoka, M. I., & Kamran, U. (2016). Analyzing common errors in English composition at postgraduate level in Khyber Pakhtunkhwa (Pakistan). *Bulletin of Education and Research, 38*(2).

Javed, M., Juan, W. X., & Nazli, S. (2013). A study of students' assessment in writing skills of the English language. *Online Submission, 6*(2), 129-144.

Kemper, D., Meyer, V., Van Rys, J., & Sebranek, P. (2018). *Fusion: Integrated reading and writing*. Boston, MA: Cengage Learning.

Kroll, B. (2001). Considerations for teaching an ESL/EFL writing course. *Teaching English as a second or Foreign Language, 3*, 219-232.

Lee, I. (2005). Error correction in the L2 writing classroom: What do students think? *TESL Canada Journal, 22*(2), 1-16.

Longhurst, R. (2003). Semi-structured interviews and focus groups. In N. Clifford & G. Valentine (Eds.), *Key Methods in Geography* (pp. 117-132). London: Sage

Maguire, M., & Delahunt, B. (2017). Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *AISHE-J: The All Ireland Journal of Teaching and Learning in Higher Education, 9*(3). Retrieved from https://ojs.aishe.org/aishe/index.php/aishe-j/article/download/335/553

Mahboob, A. (2014). Epilogue: Understanding language variation: Implications for EIL pedagogy. In R. Marlina & R. A. Giri (Eds.), *The pedagogy of english as an international language: Perspectives from scholars, teachers, and students*, (pp. 257-265) New York, NY: Springer.

Mascolo, M. F. (2009). Beyond student-centered and teacher-centered pedagogy: Teaching and learning as guided participation. *Pedagogy and the Human Sciences, 1*(1), 3-27.

McGrath, A. L., Taylor, A., & Pychyl, T. A. (2011). Writing helpful feedback: The influence of feedback type on students' perceptions and writing performance. *Canadian Journal for the Scholarship of Teaching and Learning, 2*(2), 5.

Narciss, S. (2008). Feedback strategies for interactive learning tasks. In J.M. Spencer, M. D. Merrill, J.J. G. van Merrienboer, & M. P. Driscoll (Eds.), *Handbook of research on educational communications and technology,* (pp. 125-144). Mahaw, NJ: Lawrence Erbaum Associates.

Nik, Y. A., Sani, B. B., Kamaruzaman, M. N. B. W. C., & Hasbollah, H. R. B. (2010). The writing performance of undergraduates in the University of Technology, Mara, Terengganu, Malaysia. *Journal of Languages and Culture, 1*(1), 8-14.

Nunan, D. (2003). *Practical English language teaching*. New York, NY: McGraw-Hill/Contemporary.

O'Donnell, T. D., & Paiva, J. L. (1993). *Independent writing*. Boston, MA: Heinle & Heinle.

Rajatanuml, K. (1988). *A refresher course in writing*. Bangkok, TH: Thammasat University Press.

Rass, R. A. (2015). Challenges face Arab students in writing well-developed paragraphs in English. *English Language Teaching, 8*(10), 49.

Sajid, M., & Siddiqui, J. A. (2015). Lack of academic writing skills in English language at higher education level in Pakistan: Causes, effects and remedies. *International Journal of Language and Lingusitics, 2*(4), 174.

Sattayatham, A., & Ratanapinyowong, P. (2008). Analysis of errors in paragraph writing in English by first year medical students from the four medical schools at Mahidol University. *Silpakorn University International Journal, 8*, 17-38.

Susanti, R. (2013). *Students' perceptions towards the effective feedback practices in the large EFL writing class based on participants, gender, and English proficiency level* (Unpublished doctoral dissertation). Indiana University of Pennsylvania, Indiana, PA.

Thomas, M. A. (2016). Effective and appropriate pedagogy. In C. A. Honeyman (Ed.), *25 Ways to Improve Learning* (pp. 49-52). London: UK, UNESCO

_____

KAMRAN AKHTAR SIDDIQUI is an M.Phil. (Edu.) Scholar at Sukkur IBA University. He is also serving as a lecturer at the same university in the Department of English where he teaches Business Communication, Functional English, and Creative Writing. His research interests include writing, English as a medium of instruction, and bilingualism.

Appendix

ANALYZING FACTORS INFLUENCING THE PARAGRAPH ORGANIZATION IN ENGLISH LANGUAGE WRITING OF INTERMEDIATE STUDENTS
<u>**INTERVIEW GUIDE**</u>

"Warm-Up" Question:
1. How are you?
2. How are you feeling to be a research participant?

Broad areas relevant to topic:
1. **Paragraph Organization**
   a. How do you define a paragraph?
   b. How is a paragraph organized? Or What are the elements of a paragraph?
   c. What sort of problems do you face in writing a (well-organized) a paragraph?

2. **Strategies:**
   a. How were you taught paragraph writing at your school and college?
   b. Did your teacher make you understand the organization of a paragraph? How?

   Probing
   c. Did the teacher engage you in certain group discussion sort of activities or he only delivered lecture?

3. **Feedback**
   a. Did he/she tell you your strength and weakness in writing? What areas they identified?
   b. How did the teacher provide you feedback on your work? Was it oral or written?
   c. How the teacher's feedback helped you to make a much better paragraph next time?
   d. What changes you would make in your next draft after teacher's feedback?

Ready to Leave the Nest? Education Graduate Students' Voices on Publishing

Maisha Syeda, Jon Woodend, Jingzhou Liu, and Sylvie Roy
University of Calgary

Graduate programs typically expect students to publish their scholarly work; however, few researchers have investigated their experiences in publishing. What literature does exist suggests that mentorship through co-authorship is helpful in supporting the development of emerging scholars. Importantly, there were no studies exploring the perspectives of education graduate students regarding their publication experience. The researchers of this article were all affiliated with an education journal run by and for graduate students who encountered student-authors who were not well prepared to engage in the publication process. In order to understand these student-authors' needs, the researchers conducted a needs assessment through the framework of Experiential Learning Theory (Kolb, 2014). Specifically, this needs assessment provided voice to thirty education graduate students regarding their career aspirations, previous publishing experience, helpful influences, barriers, and needed supports to engage in the publication process. The findings suggested that the students in this needs assessment lacked formal instruction on how to navigate the publication process, and they perceived mentorship from supervisors, when it existed, as helpful. Implications for graduate training based on the findings are also discussed.

Guiding and collaborating with students to conduct research, or at least to be literate in research methods, is a critical function of graduate training (Feldon, Shukla, & Maher, 2016; Gardner & Barnes, 2007). In particular, research-focused graduate programs often have a clear expectation that their students demonstrate competency in research literacy through peer-reviewed dissemination of their scholarly work (Doran, Somerville, Harlem-Siegel, & Steele, 2014). Despite this expectation, there is no guarantee that graduate students will receive formal training in publication in their program (Pfeifer & Ferree, 2006). Moreover, a lack of training in publishing could discourage emerging scholars from engaging in publication due to their perceptions that they are not competent in the publication process (Huerta, Goodson, Beigi & Chlup, 2017; Lambie & Vaccaro, 2011). Learning to publish requires a unique skill set, one that differs from the typical academic environment when the student is in study (Garbati & Samuels, 2013; Hatch & Skipper, 2016); for example, rather than set deadlines like in a course, scholarly journals have extended times from submission to publication (Syeda et al., 2017). Without training, graduate students may not be aware of these differences, which is key to being successful in the peer review process.

The training that does exist depends on the program and its requirements; for example, some supervisors may informally guide students through the publication process and even write with them, but this is not necessarily the case for all students (Syeda et al., 2017). When there is no formal mentorship for the publication process, it can leave a gap in graduate students' training and research literacy. This gap can have implications for their ability to participate in publication, prepare to be competent academics, and advance as scholar-practitioners (Davies & Felappi, 2017; Garbati & Samuels, 2013; Lambie & Vaccaro, 2011; Ni Uigin, Higgins, & Mchale, 2015).

Although researchers have put forward recommendations for graduate programs to implement to improve student engagement in the publication process (e.g., having graduate students as journal peer-reviewers; Chittum & Bryant, 2014), limited research has examined the effectiveness of these recommendations in graduate programs with respect to student publications (Knutson et al., 2014). Importantly, the voices and experiences of graduate students are not represented in identifying relevant training and experiential learning opportunities that they have, or would find beneficial, to successfully engage in the publication process.

Given that presently there is no empirical evidence highlighting the barriers the students encounter or the support that could enable them to overcome these barriers, research investigating students' experiences with publication is imperative to creating relevant and effective graduate training policies and programs. Therefore, in order to start addressing this gap in the literature, the current needs assessment sought to understand graduate students' experiences with publishing. To this end, this article first includes a description of the existing literature to situate the needs assessment, then describes the current needs assessment along with the findings. Finally, the article concludes with implications for graduate student training, limitations, and future research ideas.

Literature Review

Although the expectation of publishing in research graduate programs is ubiquitous (Manov & Milenkova, 2017), there are only a handful of articles addressing this topic. In a recent study by Robbins and LePeau (2018), the authors used a case study to investigate pre-tenured faculty members and their transition from doctoral

students to independent researchers. A key finding from this study was that completion of a dissertation study alone did not necessarily equate to the development of skills in converting the dissertation into a publishable manuscript. This suggests that training in the publication process is needed along with mentorship through the dissertation process and beyond.

In another study, Pinheiro, Melkers, and Youtie (2014) tracked the lifetime publication record of scientists and engineers and found that there is an increasing prevalence of articles in journals that are co-authored by students and their supervisors. Moreover, those scientists and engineers that engaged in co-authorship during graduate training had greater publication productivity in their career. This publication productivity is particularly critical in academia, given the philosophy of "publish or perish" in terms of faculty members' employment success (Davies & Felappi, 2017). These findings support the premise that mentorship in research writing and publication plays an important role in the development of emerging scholars. In research by Feldon et al. (2016), the authors looked at the quality of students' research writing skills depending on if they co-authored with a faculty member or not. Their findings indicated that students who co-authored with a faculty member demonstrated higher quality writing than those who did not. This finding provides evidence that when students engage in the publication process with a mentor, they enhance their research writing skills.

More specific to the education field, Garbati and Samuels (2013) explored the prevalence of articles published by education graduate students. Specifically, they reviewed published research in the fields of education and found that only 8.60% of all authors in educational research were graduate students and that a lesser percentage ($n = 4$) of the published papers were sole-authored by graduate students. Importantly, Lambie and Vaccaro (2011) noted that there were few studies looking at the research interest and experiences of education graduate students. The authors explained that they found that students who had experienced publishing were more likely to describe themselves as competent and interested in research, while students without publication experience described themselves as lacking competence and interest to engage in publication. These findings are noteworthy because of the academic and personal benefits known to be associated with publishing, such as graduate students' preparations for academic jobs or engagement with empirical research for evidence-based practice (Austin & McDaniels, 2006).

In light of this research indicating low engagement in the publication process among graduate students and the potential benefits of mentorship in publishing, there is a need for graduate programs to employ effective ways to train and engage students in publishing. Addressing this need, however, is challenging as there are currently few empirical studies looking at how to engage graduate students in the publication process (Gardner & Barnes, 2007).

Current Needs Assessment

The authors of this article were affiliated with an education journal operated by and for graduate students. A unique feature of this journal is that graduate students receive individualized mentorship as they are engaging in publication with the journal. After starting the journal operations, the editorial board of this journal noticed that the graduate students who submitted manuscripts often lacked content knowledge (e.g., how to find and select a relevant journal) for successfully engaging in the publication process, as corroborated in the literature described above (Syeda et al., 2017). Moreover, the student-authors seemed to lack confidence in their skill set and some of them described being unsure about the steps to take in order to develop that skill set, and cultivate the confidence to publish. As such, the editorial board acknowledged the need for additional insights into graduate students' experiences with publishing to identify barriers and helpful influences (Syeda et al., 2017). This observation informed the purpose of the current needs assessment, which was to add to the understanding of the overall publication experience of graduate students. The editors applied for and received local university grant funding to conduct a needs assessment. Specifically, the aim of this needs assessment was to begin to identify what helped and hindered graduate students to publish their scholarly work. Furthermore, the needs assessment aimed to identify supports that graduate students perceived would or could be helpful to engage in the publication process. Given that the journal is aimed at education graduate students, this was the target population for this needs assessment.

Theoretical Framework: Experiential Learning Theory

As there are few studies available in this topic area, the researchers used Experiential Learning Theory (ELT), as described by Kolb (2014), to frame the needs assessment. The researchers chose ELT as it focuses on the experiences of learners, as well as how they make sense of these experiences to inform future learning opportunities, in a cyclical and continuous manner (Kolb, 2014). Specifically, Kolb noted one way of understanding the learning process is through four stages: learners engage in (a) concrete experience, (b) observations and reflection about the concrete experience, (c) formation of abstract concepts/generalizations, and (d) testing implications of

concepts in new situations. Researchers have used ELT to investigate and understand a range of areas such as engineering, music, and agriculture, thus demonstrating its cross-subject applicability (Morris, 2019). ELT, when applied, can help learners to master a specific skill set (Russell-Bowie, 2013), increase knowledge in a relevant area (Bethell & Morgan, 2011), and develop self-efficacy (Chan, 2012). According to Kolb (2014), applications and efficacy of ELT across disciplines have also attracted its implementation in higher education as well.

While Kolb's model (2014) is regarded as one of the most influential and cited models in the literature for ELT, it had also faced criticisms in the past for its lack of clarity to specify what constitutes "concrete experience" to foster effective learning (Bergsteiner, Avery, & Neumann, 2010). To address the criticism, Morris (2019) conducted a systematic review of recent, empirical studies employing experiential learning to examine what constituted concrete experience in those investigations. Morris's (2019) findings highlighted that in order to foster effective learning, the learners should actively engage and participate in the learning process, as well as be exposed to novel situations that may involve risk-taking and real-world problem-solving.

Learning to publish in an academic journal could mirror the cyclical stages of Kolb's ELT (2014). In particular, the graduate student (i.e., learner) may first need a concrete experience with a journal and the publication process in order to then observe the relevant skills necessary for publishing (Kolb, 2014). From these observations, the graduate student could form skill sets for engaging in publishing across journals and test these skills in further publication experiences. Furthermore, aligned with the revisions made to explain the nature and extent of what constitutes concrete experience in ELT to facilitate learning (Morris, 2019), it could be implied that in order for graduate students to effectively learn about publishing, they should explicitly be exposed to publishing (e.g., a novel), given a role of an active participant in the publishing process, and be guided on how to problem-solve when faced with barriers in the publishing process. If graduate students are unable to, or ineffectively, engage in the first stage of learning and gain appropriate concrete experience on publishing, then further development may be impeded. As such, the researchers focused this needs assessment on the first and second stages of ELT in order to inform training in the publication process for graduate students.

Guiding questions. Informed by ELT, there were two main foci for this needs assessment. The first area of focus was to gain some contextual information about education graduate students including their career aspirations and their publication experience (i.e., motivation to publish and first stage concrete experience). As such, the guiding questions for this area were: (a) What are education graduate students career

aspirations (i.e., practice, research, other)? and, (b) What are the experiences of education graduate students in publication process? The second area of focus was on the perceived helpful influences, barriers, and supports needed to publish (i.e., second stage observation and reflection). The specific questions guiding this area were (c) What have education graduate students found helpful when engaging in the publication process? (d) What barriers have education graduate students encountered in trying to publish? (e) What supports do education graduate students think are needed to help them engage in the publication process?

Needs Assessment Design

After receiving ethics approval from the university of affiliation, the researchers shared an invitation email with the school of education at their university for administrators to send to education graduate students. The researchers also created recruitment posters and hung them on different locations in order to increase respondent numbers. As well, the researchers approached the university's graduate student association to post the recruitment poster on the association's Facebook page. The email and the recruitment poster contained a link through which interested students could access an online questionnaire, which remained open for three months to collect responses. Before answering the questionnaire, all participants needed to provide informed consent and the researchers indicated that participants could refuse to answer any of the questions and could respond to them with as much detail as they felt comfortable sharing.

The questionnaire contained four sections. The first section aimed to capture participants' demographic information, including age, gender, degree, year of study, area of specialization, research-stream or course-stream degree program, previous graduate degrees, and their status as domestic or international students. The second section focused on the career aspirations of the participants, as well as the number of publications, such as peer-reviewed articles, conference proceedings, book chapters, and book reviews. The first two sections were important to better understand the participants and contextualize their responses. The next section explored participants' experiences on publishing, which included practices that were helpful, as well as the barriers that impeded their efforts to publish. The last section inquired about suggestions for needed supports when trying to publish (i.e., supports that were not available, but if they had been, would have been helpful). In these open-ended questions (e.g., publication experience, helpful influences, etc.), students were not limited to a singular choice and were encouraged to generate responses based on their experiences. After the questionnaire was filled out, all participants received a $10 gift card as an honorarium.

Table 1
Participants' Preferred Career Focus

Code	*n*
Practice-Based	18
Post-Secondary	13
Research-Based	3
Unsure	1

Note. n indicates the frequency with which participants endorsed the code.

Participants. There was a total of 30 graduate students who elected to participate in this survey, all from the researchers' university of affiliation in western Canada. These participants were enrolled in education graduate programs. Of the participants, 27 identified as women, two as men, and one declined to indicate gender. Participants' ages ranged from 23 to 49 (*M* = 35, *SD* = 8.60). For level of education, 12 participants indicated being enrolled in a doctoral program (i.e., Doctor of Philosophy or Doctor of Education), and 18 participants indicated being enrolled in a masters' program, including Master of Education, Master of Science, or Master of Arts. Regarding their student status at the university, 25 students were domestic students and five were international students.

Data analysis. Although the survey was open-ended, participants' responses tended to be short (i.e., a few words or two to three sentences). As such, the researchers chose to use summative content analysis as this approach allows researchers to sort broad and brief responses in the raw data with other like responses to form themes (Hsieh & Shannon, 2005; Lichtman, 2013). Specifically, the researchers looked for key phrases within each participant's responses to questions and created preliminary codes based on their understanding of these key phrases. The researchers then compared these individual codes for similarities and dissimilarities across participants' responses to each question. The researchers then created formal codes based on these group comparisons and calculated the frequency with which participants endorsed each code (Hsieh & Shannon, 2005). These frequencies do not represent the importance of the code to the participant and instead provide insight into how common of an experience it was among participants in this needs assessment.

After completing the data analysis, the researchers invited an independent reviewer to evaluate the codes based on Yardley's (2000) criteria for qualitative research. Specifically, the reviewer determined the codes' (a) sensitivity to context (i.e., is the method appropriate to the type of data and material of the data?), (b) commitment and rigor (i.e., do the findings appropriately address the research questions?), (c) transparency and coherence (i.e., is it clear how the

codes were formed?), and (d) impact and importance (i.e., do the codes share critical insights?). Based on this evaluation, the researchers further refined the codes.

Findings

The aim for this needs assessment was to investigate education graduate students' experience in publishing. As such, this section starts with a review of participants' contextual information regarding their career aspirations and publication experience. There is then a discussion around the specific influences relevant to their experience in publishing, including influences that were helpful or barriers to engaging in the publication process, as well as supports that could be helpful.

Contextual Information

Within academia, there could be a perception that education graduate students who are focused on practice may not be interested or involved in publishing their scholarly work (Lambie & Vaccaro, 2011; Ramli & Muchsini, 2019). To explore whether or not that was the case for our participants, we asked for their career aspirations along with their experiences, or lack thereof, with the publication process. By understanding their career aspirations and their publication experience, we aimed to understand if, for the participants in this needs assessment, there is evidence for this perception. For career aspirations see Table 1; specifically, in this needs assessment, a majority of participants indicated being, or wanting to be, involved in a practice-based setting (e.g., teaching or counseling within schools). Almost half of the participants reported being or wanting to be in a post-secondary setting where they would have shared focus on practice as well as research. Only three participants shared a preference for a primarily research-based focus for their career.

Turning to experience in the publication process, participants indicated having diverse previous publishing experience, as shown in Table 2. Almost half of participants shared that they had prepared a manuscript, and of those, almost all indicated that they had submitted the manuscript to a peer-reviewed journal for publication. Of those that submitted their

Table 2
Students' Previous Publishing Experience

Code	*n*
Manuscript Prepared	14
No Experience/Attempt	13
Manuscript Submitted	12
Manuscript Accepted	8
Conference Presentation	5
Thesis-Based	4
Research Assistant Project-Based	2
Acknowledgement	1
Poster Presentation	1

Note. n indicates the frequency with which participants endorsed the code.

Table 3
Influences Participants' Found Helpful to Publishing

Code	*n*
No Responses/Not Applicable	11
Encouraging & Specific Feedback	9
Supervisor	7
Instructor	4
Journal Status	5
Personal Motivation	3
Research Team	3
Mentor	2
Course Structure	1
Familiarity with Publishing	1
Institutional Culture of Research	1
Workplace Expectation of Publishing	1

Note. n indicates the frequency with which participants endorsed the code.

manuscript for review, over half reported being accepted for publication. This is a surprising result as acceptance rates for peer-reviewed journals tend to be low; however, participants did not indicate the relative status of the journals into which they were accepted (e.g., impact factor), nor did they indicate their position in authorship (e.g., first author).

Some participants did indicate how they were involved in the publication process, including through content based on their thesis research or work as a research assistant, or through an acknowledgement. As well, for the participants that at least prepared a manuscript for publication, four indicated having an encouraging experience, and six shared having a discouraging experience with publication. This suggests that, although being accepted for publication is a prestigious and valuable experience for any graduate student, the process could be further enhanced to constructively support graduate students' development as emerging scholars.

Although almost half of participants in this needs assessment indicated that they had some experience with at least preparing a manuscript, nearly all in the other half reported that they had no experience or had not attempted to engage in publication or present at academic conferences. Only five participants endorsed giving conference presentations, including poster presentations, even though it was included as an explicit example in the survey question, given that conference presentations tend to be students' first steps into the peer-review process. Taken together with their career aspirations, these findings suggest, for the participants in this needs assessment, having practice-focused career aspirations did not preclude them from engaging, and having success in, the publication process.

Helpful Influences

Shifting to what education graduate students found helpful when engaging in the publication process, participants identified a variety of influences, noted in Table 3. About half of participants referred to a range of individuals who were helpful to their publication

success, either by offering guidance, information, or encouragement. In particular, participants' responses suggested a hierarchy of individuals who were helpful. Most frequent were supervisors, which is not surprising given that supervisors would likely have the most interaction with students and knowledge of their work and skills. Next were course instructors, followed by research teams, and finally mentors (i.e., peers or faculty who were not supervisors or course instructors). This hierarchy of individuals suggests that students prefer and/or need direct support (i.e., mentorship) when first engaging with the publication process.

Along with indicating a range of individuals, about a third of participants shared that helpful influences to engaging in the publication process were receiving specific and positive feedback from journals (e.g., how to improve the manuscript, as well as areas of strength). This suggests that students benefitted from the mentorship and scaffolding provided through engagement with journals.

A few participants each mentioned that being familiar with the publication process (e.g., working as an admin support for a journal), having personal motivation to publish (e.g., to see work disseminated), and being in a course, work, or academic environment that had the expectation or culture of publishing was a helpful influence for engaging in the publication process. These findings suggest that having knowledge about the publication process, along with being part of an environment where there is an expectation of publication, could facilitate engagement with publishing. Of note, when indicating what was helpful in engaging in the publication process, over a third of participants did not report any experience or person.

Barriers

The barriers encountered by participants in this needs assessment mirrored the helpful influences, as shown in Table 4. Specifically, almost two-thirds of participants in this needs assessment indicated that they had insufficient knowledge about the publication process, which prevented them from engaging in it. Specifically, many participants shared that they did not understand the publication process (e.g., the steps to publish a manuscript or which journals to target). This finding suggests that these participants perceived that they required this background knowledge before they could engage in the publication process. Over half of participants in this needs assessment indicated that a lack of support from a mentor (e.g., either their supervisor, course instructor, or a peer) prevented them from engaging in the publication process. This finding corresponds with the finding noted earlier in helpful influences that participants perceive support from others as important for engaging in the publication

process. These findings also align closely with previous research findings (e.g., Doran et al., 2014) that highlighted a potential lack of formal teaching of publication skills in graduate courses and curricula.

Additionally, a third of participants did not feel confident or secure about their skills and the quality of their work to write a publishable manuscript; their responses reflected their uncertainty about the publication process (e.g., not knowing where to begin), as well as fear and worries of receiving harsh criticisms from journals. Moreover, these participants reported thinking that they did not have the ability or skills to translate their academic work into publishable manuscripts. These findings potentially highlight the need for graduate programs to support students in developing not only the skills for engaging in the publication process, but also the confidence in those skills and their scholarly work to do so.

Lastly, close to one third of participants also reported not having enough time in their graduate studies as a barrier to engaging in the publication process. Three participants indicated a perceived lack of opportunities to publish throughout their degree as a barrier to engaging in the publication process. These findings suggest that, even though there is often an inherent expectation within graduate programs that students engage in publishing, the participants in this needs assessment lacked explicit requirements to allocate their time in the program to publishing, as well as lacked identification of publishing opportunities in which they could engage.

Of note, there was only one participant who indicated that they were not interested in publishing, which suggests that lack of desire to publish was not a frequent barrier to publishing. Unfortunately, given the static nature of online surveys (Lefever, Dal, & Matthiasdottir, 2007), additional contextual reasoning for this participant's lack of interest is not known.

Supports Needed

Participants identified various supports that they perceived as potentially being helpful to engage in the publication process, as detailed in Table 5. Over half of participants indicated that both formal education in how to publish and write for a journal, as well as writing mentorship (i.e., supervisors, instructors, peers), would be helpful to develop a publishable manuscript. Participants elaborated that they needed structured education regarding information about the general publication process, as well as the practical skills and steps to publish (e.g., transforming scholarly work into a journal manuscript format). Moreover, participants shared that they needed opportunities to receive individualized and ongoing guidance and learning from mentors throughout the manuscript development

Table 4
Barriers Participants Encountered in Trying to Publish

Code	n
Lack of Knowledge	18
Lack of Support (i.e., mentor)	16
Lack of Confidence/Ability	10
Lack of Time	7
Lack of Opportunities	3
Lack of Interested	1

Note. n indicates the frequency with which participants endorsed the code.

Table 5
Supports Participants Described to be Needed to Help them Engage in the Publication Process

Code	n
Writing Mentorship	19
Publication and Writing Education	16
Supervisor	5
Program Structure/Time	7
Publication Opportunities	2
Confidence	1
Funding	1

Note. n indicates the frequency with which participants endorsed the code.

process. Participants indicated that their publication mentors could be supervisors, another faculty member, advisor, instructor, peers, or a research team. These findings complement those in the helpful influences and barriers sections. Specially, many participants in this needs assessment indicated that explicit instruction and mentorship were the keys to whether or not they engaged in the publication process.

Additionally, almost one third of participants reported that having more time in their program would potentially enable them to engage in the publication process. Two participants indicated that being explicitly informed of opportunities would be helpful for them to be involved in publishing. One participant noted that improving personal confidence and funding could also support them to take part in publication. These findings imply that some of the participants in this needs assessment would benefit from requirements to publish.

Discussion

Due to the gaps in the literature about graduate students' experiences with publishing, the researchers conducted a needs assessment using the ELT model, developed by Kolb (2014) and then revised by Morris (2019), to conduct an empirical inquiry on this topic. Specifically, the needs assessment aimed to explore how education graduate students were learning to publish with respect to the first two stages of Kolb's ELT model (2014): concrete experiences with

publishing and students' observation and reflections on their experiences with publishing, i.e., what helped or hindered them from publishing and what supports were needed to facilitate engagement with publishing. The key findings from the current needs assessment suggest that, for participants, in-person mentorship was the most useful influence for them, as they reflected that it was this concrete experience that helped them to develop skills in publication. When participants did not have this concrete experience, then they reflected that they struggled to engage in the publication process. These findings are consistent with Pinheiro et al. (2014), who found that co-authorship with mentors or supervisors resulted in greater publication productivity.

Implications for Education Graduate Student Training

Based on the findings from this needs assessment, there were three implications for education graduate student training in the publication process. First, the students in this needs assessment reported experience in the publication process even though they also indicated that their career aspirations were primarily practice-focused. This suggests that students did not need to be interested in a research career to have engagement in publication. From an ELT perspective (Kolb, 2014; Morris, 2019), this is an important implication for education graduate training programs to be mindful of providing concrete publication training to students who

are interested in acquiring this skill set, regardless of their degree focus. A potential benefit of encouraging future practitioners to participate in publication is that there will be a greater influence of research in practice, as well as practice informing research (Knutson et al., 2014; Ramli, & Muchsini, 2019).

Second, from the majority of the responses in this needs assessment, it was clear that support from knowledgeable mentors, such as supervisors and instructors, was critical to engaging in the publication process. Conversely, most participants in this needs assessment were clear that lack of content knowledge related to the publication process (e.g., journal selection) kept them from engaging. These two findings were corroborated by participants' responses to supports that would be helpful to engage in the publication process. These findings reflect the second step of ELT in that the participants observed that mentorship and content knowledge training was integral to success in publishing. Without this mentorship and learning, education graduate students may lack the ability and self-efficacy to progress to the third stage of ELT (i.e., generalize skills for future publication opportunities).

Last, journals provide the learning space in which graduate students develop as emerging scholars in the publication process. As gatekeepers of scholarly works, journals, through the review process, inherently provide feedback which contributes to the scholarly development of authors, including graduate students. The participants in this needs assessment indicated that encouraging and constructive feedback was helpful in engaging in the publication process. An important implication for journals is that some participants in this needs assessment noted feeling insecure about their skills or thinking that their work was not of good enough quality for publication (i.e., low self-efficacy), which may prevent students from engaging in the publication process (Huerta et al., 2017). Moreover, the findings suggest that students highly regarded journal feedback as they indicated worrying about receiving overly critical feedback. As this feedback is an opportunity to learn and to be mentored by esteemed scholars in the field, according to ELT (Morris, 2019), students need feedback that provide them with specific guidance to effectively problem-solve to advance into developing independent application of publishing.

Limitations and Future Research

This needs assessment had limitations that are important when considering the findings. In particular, participants who identified as men were underrepresented, which means that their voices regarding the publication experience are not comprehensively represented in the findings. Moreover,

as participants contributed responses through an online questionnaire, the researchers were unable to include follow up questions to gain further detail about specific experiences and perceptions (Lefever et al., 2007). Finally, although the findings in this needs assessment are not generalizable to the general graduate student population, the experiences shared in this needs assessment may have aspects that are transferable to other academic disciplines and provide a base upon which to engage in future exploration on this topic.

Future research could address these limitations by exploring the experiences of gender diverse graduate students to represent their voices. Alternatively, future research could use semi-structured interviews to follow up on findings in this needs assessment and gain a more nuanced understanding of graduate students' experiences. Through these semi-structured interviews, researchers could also expand upon the ELT framework in order to understand how students move from these concrete publication experiences and reflections to formation of abstract concepts regarding publication skills, then testing these concepts in different academic situations (i.e., steps three and four of ELT). Finally, it would also be helpful to understand the perspectives of supervisors, instructors, and graduate programs regarding how they support graduate students to publish. From these multiple perspectives, researchers could obtain a more comprehensive understanding of education graduate students' publication experiences.

Conclusion

The goal of this needs assessment was to explore education graduate students' voices on publishing. Based on participants' responses, almost half of the participants shared that they had prepared a manuscript and submitted it to a peer-reviewed journal for publication. Most participants reported that they received support at some point throughout the publishing process. Particularly, supervisors played a role in students' engagement in publishing. Regarding barriers, most students reported a lack of knowledge in the publication process, as well as a lack of support from a mentor. In terms of needed supports, most participants indicated that they wanted structured formal education and training, as well as writing mentorship, on publishing. Overall, if the expectation of education graduate students is that they engage in the publication process (Lambie & Vaccaro, 2011; Ramli & Muchsini, 2019), then based on the participants' experiences in this needs assessment, graduate students need formalized training, such as tiered mentorship and concrete instruction regarding publication. This training may help graduate students to feel more supported in their publication experiences and encourage further participation as they move beyond training.

References

Austin, A. E., & McDaniels, M. (2006). Preparing the professoriate of the future: Graduate student socialization for faculty roles. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. XXI, pp. 397–456). Dordrecht, NL: Springer.

Bergsteiner, H., Avery, G. C., & Neumann, R. (2010). Kolb's experiential learning model: Critique from a modelling perspective. *Studies in Continuing Education, 32*, 29–46. doi:10.1080/01580370903534355

Bethell, S., & Morgan, K. (2011). Problem-based and experiential learning: Engaging students in an undergraduate physical education module. *Journal of Hospitality Leisure Sport and Tourism, 10*(1), 128-134. doi:10.3794/johlste.101.365

Chan, C. C. (2012). Exploring an experiential learning project through Kolb's learning theory using a qualitative method. *European Journal of Engineering Education, 37*(4), 405-415. doi:10.1080/03043797.2012.706596

Chittum, J. R., & Bryant, L. H. (2014). Reviewing to learn: Graduate student participation in the professional peer-review process to improve academic writing skills. *International Journal of Teaching and Learning in Higher Education, 26*(3), 473-484. http://www.isetl.org/ijtlhe/pdf/IJTLHE1984.pdf

Davies, B., & Felappi, G. (2017). Publish or perish. *Metaphilosophy, 48*(5), 745-761. doi:10.1111/meta.12269

Doran, J. M., Somerville, W., Harlem-Siegel, J., & Steele, H. (2014). The more you know: The impact of publication and peer-review experience on psychology graduate students. *Teaching of Psychology, 41*(2), 122–129. doi:10.1177/0098628314530342

Feldon, D. F., Shukla, K. D., Maher, M. A. (2016). Faculty-student co-authorship as means to enhance STEM graduate students' research skills. *International Journal for Researcher Development, 7*(2), 178-191. doi:10.1108/IJRD-10-2015-0027

Garbati, J., & Samuels, B. (2013). Publishing in educational research journals: Are graduate students participating? *Journal of Scholarly Publishing, 44*(4), 355–372. doi:10.3138/jsp.44-4-004

Gardner, S. K., & Barnes, B. J. (2007). Graduate student involvement: Socialization for the professional role. *Journal of College Student Development, 48*(4), 369–387. doi:10.1353/csd.2007.0036

Hatch, T., & Skipper, A. (2016). How much are PhD students publishing before graduation? An examination of four social science disciplines. *Journal of Scholarly Publishing, 47*(2), 171-179. doi:10.3138/jsp.47.2.171

Hsieh, H., & Shannon, S. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15*, 1277-1288. doi:10.1177/104973230527668

Huerta, M., Goodson, P., Beigi, M., & Chlup, D. (2017). Graduate students as academic writers: Writing anxiety, self-efficacy and emotional intelligence. *Higher Education Research and Development, 36*(4), 1-14. doi:10.1080/07294360.2016.1238881

Kolb, D. A. (2014). *Experiential learning: Experiences as the source of learning and development*. New Jersey: FT Press.

Knutson, C. C., Jackson, M. N., Jr., Beekman, M., Carnes, M. E., Johnson, D. W., Johnson, D. C., & Keszler, D. A. (2014). Mentoring graduate students in research and teaching by utilizing research as a template. *Journal of Chemical Education, 91*(2), 200-205. doi:10.1021/ed400143a

Lambie, G. W., & Vaccaro, N. (2011). Doctoral counselor education students' levels of research self-efficacy, perceptions of the research training environment, and interest in research. *Counselor Education and Supervision, 50*(4), 243-258. https://doi.org/10.1002/j.1556-6978.2011.tb00122.x

Lefever, S., Dal, M., & Matthiasdottir, A. (2007). Online data collection in academic research: advantages and limitations. *British Journal of Educational Technology, 38*(4), 574-582. doi:10.1111/j.1467-8535.2006.00638.x

Lichtman, M. (2013). *Qualitative research in education: A user's guide*. Thousand Oaks, CA: Sage.

Manov, B., & Milenkova, V. (2017). University education system as a research environment for the training of PhD students. *Open Journal for Sociological Studies, 1*(1), 2560-2583. doi:10.32591/coas.ojss.0101.03027m

Morris, T. H. (2019). Experiential learning – A systematic review and revision of Kolb's model. *Interactive Learning Environments,*1-14. doi:10.1080/10494820.2019.1570279

Ni Uigin, D., Higgins, N., & Mchale, B. (2015). The benefits of student-led, peer-reviewed journals in enhancing students' engagement with the academy. *Research in Education, 93*(1), 60–65. doi:10.7227/RIE.0010

Pfeifer, H. L., & Ferree, C. W. (2006). Tired of "reeding" bad papers? Teaching research and writing skills to criminal justice students. *Journal of Criminal Justice Education, 17*(1), 121-142. doi:10.1080/10511250500335692

Pinheiro, D., Melkers, J., & Youtie, J. (2014). Learning to play the game: Student publishing as an indicator of future scholarly success. *Technological Forecasting & Social Change, 81*, 56-66. http://dx.doi.org/10.1016/j.techfore.2012.09.008

Ramli, M., & Muchsini, B. (2019). Testing the research abilities of student teachers at pre-service training and education. *Journal of Physics: Conference Series, 1*(1), 27-36. doi:10.32591/coas.ojss.0101.03027m

Robbins, C. K., & LePeau, L. A. (2018). Seeking "better ways": Early career faculty researcher development. *Studies in Graduate and Postdoctoral Education, 9*(2), 113-126. doi:10.1108/SGPE-D-17-00029

Russell-Bowie, D. (2013). Mission impossible or possible mission? Changing confidence and attitudes of primary preservice music education students using Kolb's Experiential Learning Theory. *Australian Journal of Music Education, 2*, 46-63. Retrieved from https://eric.ed.gov/?id=EJ1061833

Syeda, M. M., Woodend, J., Ko, G., Fowler, T., Chondros, K., Hilman, B., & Paris, B. (2017). Reflections on creating a student-run journal: A duo-ethnography. *Emerging Perspectives, 1*(1), iii-xxi. Retrieved from https://journalhosting.ucalgary.ca/index.php/ep/article/view/42085

Yardley, L. (2000). Dilemmas in qualitative health research. *Psychology & Health, 15*(2), 215-228. doi:10.1080/08870440008400302

MAISHA M. SYEDA, Ph.D. is currently a postdoctoral associate with the Centre for School Mental Health at Western University. Her research interests include mental health promotion with newcomer youth, and research and evaluation considerations for diverse and vulnerable youth groups. Corresponding email: msyeda4@uwo.ca

JON WOODEND, PhD, is a lecturer at James Cook University. His research focuses on graduate student research development, and career development and counseling, particularly in regard to the international career transitions of newcomers to Canada and Australia. Corresponding email: jon.woodend@jcu.edu.au

JINGZHOU LIU is a PhD candidate in the Werklund School of Education at the University of Calgary. Her research focuses on comparative and international education, immigration in Canada, workplace learning, intersectionality theory, and institutional ethnography. She has published two peer-reviewed journal articles, "Internationalization of higher education: Experiences of intercultural adaptation of international students in Canada," which appeared in *ANTISTASIS* (2016), and, "Beyond the cultural approach: Understanding the experience of Chinese international students in Canada from an intersectionality perspective" in the *International Journal of Chinese Education* (2017), both of which won the Knowledge Mobilization Award from the University of Calgary.

SYLVIE ROY is a professor in Language and Literacy and Associate Dean of Research in Werklund School of Education, University of Calgary. Her research focuses on sociolinguistic ethnography, teaching and learning additional languages and ideologies in French Immersion contexts. She is currently working on a project called French Immersion for new social realities in contemporary and transnational times with her colleague, Dr. Julie Byrd Clark using transdisciplinarity as a theoretical framework. Dr. Roy was the faculty advisor and mentor for the research project upon which this article is based.

Improving Student Learning Outcomes through a Collaborative Higher Education Partnership

Libba McMillan, Tanya Johnson,
Francine M. Parker, and Caralise W. Hunt
Auburn University

Diane E. Boyd
Furman University

The aim of this article is to discuss a portfolio of interventions used to improve student outcomes in an accredited southeastern university's baccalaureate nursing program. Faculty identified three specific student-focused issues challenging student learning: (a) a steady trend of increasing student enrollment, (b) increased difficulty level of the national licensure exam, and (c) lack of a structured remediation/mentoring process to improve student skills. Increasing student enrollment challenged faculty to explore teaching strategies designed for larger class sizes, to maximize teaching effectiveness, and to use standardized exam results to inform curricular changes. A Learning Improvement Team (LIT) was strategically formed with university resources; The Biggio Center for the Enhancement of Teaching and Learning (BC), the Office of Academic Assessment (OAA), and the School of Nursing. Faculty, particularly junior-level, are taking the lead role in implementing pivotal changes in courses. Strategies include student learning outcomes improvement efforts as a departmental goal and expectation, dashboard communication for data-based curricular decisions, faculty workshops spotlighting successful classroom strategies, and interdisciplinary university partnerships. Lessons learned included recognition of the need for congruent faculty role expectations and workload, as well as awareness of the critical role of institutional support and collaboration. This successful partnership positively impacted nursing faculty, transformed departmental culture, and improved student outcomes.

Students are continually challenged to perform academically at a high level and make small behavioral changes to yield big benefits in achieving success in a nursing program. Popkess and Frey (2016) posit that nursing students may underestimate, or lack comprehension of, the numerous challenges found in the journey through nursing school. Although numerous sources recommend integrating student success programs into curricula and policies, there are barriers to sustaining these efforts. Despite due diligence and good intentions, faculty committed to improving teaching skills face many barriers. These include heavy faculty workload, faculty perception of lack of competency to remediate, inexperienced faculty, and a generalized perception of remediation being the responsibility of students rather than faculty (Jeffreys, 2012; Mee & Schreiner, 2016). Faculty need institutional and departmental support that can adequately address needs and deficiencies and provide resources to improve student learning. Nursing programs also must have a process in place to define "at-risk" parameters and identify students early to personalize a remediation plan based on the student's self-evaluation coupled with faculty support (Elder, Jacobs & Fast, 2015). Given these challenges, it is important that students have access to faculty who can facilitate resolution of problems that could interfere with student progression through undergraduate programs. In addition, faculty must have relevant support (Elder, 2015; Mills, Wilson & Bar, 2001).

Faculty members in one accredited baccalaureate nursing school program in a large southeastern university identified three specific student-focused issues challenging student learning. These included: (a) a steady trend of increasing student enrollment, (b) a

significant increased difficulty level of the National Council Licensure Exam (NCLEX-RN®) exam in Spring 2013, and (c) lack of a structured remediation/ mentoring process to improve student skills. The steady trend of increasing annual student enrollment challenged faculty to employ teaching strategies designed for larger class sizes. Faculty members focused on systematic efforts to increase the level of difficulty in exams in order to align more closely with questions written at the application level of Bloom's taxonomy or above-- versus the previous lower levels of knowledge and comprehension. The purpose of this article is to discuss a portfolio of interventions used to improve student learning outcomes and remediation/ mentoring process efforts in a baccalaureate nursing program. The strategies described emerged from the formation of a unique partnership focused on faculty development and academic assessment and termed the Learning Improvement Team (LIT). The project was reviewed by the University IRB and determined Not Human Subjects Research (NHSR).

Review of Literature

Montenegro and Jankowski (2017) discuss learning outcomes as a process with statements that clearly address what students should know and be able to demonstrate upon completion of a course, academic program, and use of student services. These learning outcomes statements must align with the department's goals and the mission of the university. Additionally, through carefully constructed learning outcomes statements, students must understand

departmental expectations as a guide for future career growth, thus necessitating the importance of using intentional language (Adelman, 2015; National Institute for Learning Outcomes Assessment, 2016).

Faculty must first understand major concepts of how to ensure student learning and how to motivate students to learn. Learning theories benefit faculty by offering various dimensions and dynamics when challenged with the concept of improving student learning. Butts and Rich (2018) explain learning theory's foundations in psychology and ethics regarding how learning occurs. Student learning is complex and occurs in individual courses, general education core courses, clinical experiences, and student life. While there exists an abundance of literature to support faculty employing multiple teaching strategies to meet the needs of individual student learning styles, students should be encouraged to seek, develop, and practice alternate ways of learning (Lown, & Hawkins, 2017; Revell & McCurry, 2010).

There are many tools and techniques used by nursing faculty to identify gaps in student knowledge, reinforce learning, and improve standardized examination scores. There are many ways student learning is assessed, and among these are adaptive quizzing and computerized testing with remediation which provide baseline data that help faculty gauge student preparedness and readiness for additional content. There is an ever-growing body of literature on various strategies employed by faculty to increase the likelihood that students will pass the NCLEX-RN, the gateway to nursing practice, on the first attempt. In a retrospective study of 761 nursing students from one rural, public state university, Palmer, Shanty, Labant, and Rossiter (2017) reported that a significantly high number of students reached the established program benchmark when the answers and rationale feature was turned off in practice assessment exams within several courses. However, students had the option to utilize the review topic feature, which was found to be more beneficial to student success. Faculty can readily translate this strategy to structured NCLEX-RN preparation activities which would most likely be of benefit to students as they prepare for the exam. Additionally, establishing solid baseline data enables programs to chart how well students learn over time and informs curricular changes, which contribute to learning improvement for students in the program, as well as for the program itself (Maki, 2002).

Blozen (2017) incorporated semi-structured interviews in a qualitative study to identify factors that facilitate and inhibit student success in an accelerated nursing program and the pathway to NCLEX-RN success. Strategies employed included practicing NCLEX-RN style questions, clinical experiences, faculty support, and a review course. Student participants reported that the most helpful strategy leading to success was answering NCLEX-RN style questions. To a lesser extent, clinical experiences and family, faculty, and peer support contributed to passing the exam. The relationship between critical thinking skills as a predictor of NCLEX-RN success has been explored a limited number of times (Facione & Facione, 1997; Giddens & Gloeckner, 2005; Romeo, 2010; Shirrell, 2008). Kaddoura, Van Dyke and Yang (2017) gathered data from one accelerated nursing program for a retrospective, ex post facto descriptive study. Entry and exit Health Education Systems Incorporated (HESI) critical thinking test (CT) scores of 110 accelerated students were analyzed. Findings indicated that entry and exit critical thinking skills scores were significant predictors of first-time successful pass rates.

Whereas the role of faculty members is crucial in course design, writing learning objectives, and considering proper assessment of student learning, there must be accountability from both faculty and higher education leadership to sustain efforts (Liu, Bridgeman & Adler, 2012). Specific principles for effective assessment include embedding assessment into institutional processes, securing support from administrative leadership, making resources available for faculty while supporting the professional development of faculty and staff members, providing a vision for assessment, encouraging space for discussion and collaboration, engaging ownership of assessment, and sharing information widely regarding assessment. (Baker, Jankowski, Provezis & Kinzie, 2012). The role of administrative support to student success is critical, especially in the addressing of motivational problems of faculty, ensuring of adequate resources affecting faculty workload, and "buy-in" of faculty to student learning assessment strategies. In higher education there must be clear goals and continual work toward improving results. Factors affecting faculty members' motivation include increasing confidence in teaching ability and assessment practices; removing unnecessary policies, procedures, or barriers; and supporting the development of faculty's strong interest value (Liu et al., 2012; Sujitparapitaya, 2014). Hutchings (2010) addresses challenges in achieving faculty involvement. To promote faculty involvement, institutional leadership must provide numerous ways to align assessment with the scholarly work of faculty, incorporate assessment into the regular work of teaching and learning, create a safe and sustained place for faculty development, and create spaces and occasions for constructive assessment conversation and action.

The Learning Improvement Team

Maki (2002) addresses the importance of assessment becoming a collective means whereby colleagues discover

the fit between institutional or programmatic expectations for student achievement. Fortunately, the Learning Improvement Team was strategically in place at the institutional level and included The Biggio Center for the Enhancement of Teaching and Learning (BC) and the Office of Academic Assessment (OAA). The combined efforts and synergy provided collaborative resources to the Nursing School to offer targeted teaching and learning support via the LIT initiative. Additionally, the School of Nursing is among six other university departments/schools that are currently participating in a targeted process aimed at improving student learning unique to departmental goals. The LIT initiative leveraged a collaborative Learning Improvement Model (Fulcher, Good, Coleman, & Smith, 2014) to focus faculty, educational developers, and assessment professionals on student learning improvement. Over a six-month period, the collaboration team focused on impacting one programmatic student learning outcome. To help facilitate choosing the learning outcome, faculty development and academic assessment professionals held three meetings for a total of approximately six hours of interaction, with the School of Nursing's leadership team to investigate existing learning outcome data, discuss aspirational goals for student learning, and plan interactions with larger groups of nursing faculty. An overview of the specific elements of these interactions included a kick-off brainstorming celebration in which the School of Nursing leadership team focused in on the NCLEX competency/student learning outcome targeted for improvement, a follow-up meeting with leadership which included inspirational literature (e.g., Kotter's model of

change), and an empathetic approach to enlisting the entire nursing faculty's buy-in to the project. A set of reflective prompts were used to further sharpen and focus specific student learning outcomes. The ensuing departmental workshop was structured on identifying a learning intervention in which faculty teams were sorted by primary teaching year in the program. Faculty identified teaching strategies already employed in classes to support student learning related to infection control. BC and OA professionals led the group in a gallery walk distillation exercise, in which the unfolding case study approach was unanimously chosen as the intervention of choice.

Nursing programs commonly utilize standardized HESI testing throughout pre-determined courses to evaluate mastery of course concepts and content. The Exit HESI exam is an all-inclusive exam used to validate knowledge learned throughout the entire nursing program (Schooley & Kuhn, 2013). Langford and Young (2013) reported an increasing number of nursing programs throughout the United States administer the Exit HESI standardized examination as a 96% - 99% precise indicator of successful passage for first-time test takers of NCLEX-RN exam. Exit HESI scores were compared to NCLEX pass rates for three cohorts of graduates from the School of Nursing. Figure 1 illustrates a positive correlation of this indicator. Although the correlation was slight, faculty found this information helpful as it validated Langford and Young's (2013) report that the Exit HESI is an indicator of first time NCLEX-RN success.

Figure 1
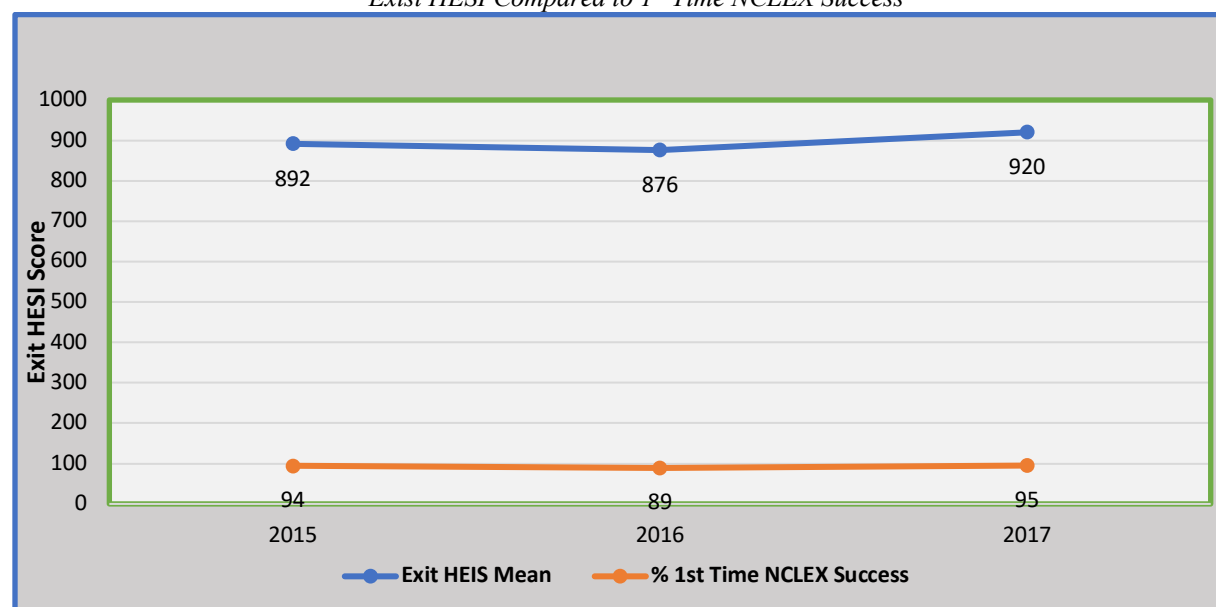*Exist HESI Compared to 1ˢᵗ Time NCLEX Success*

Table 1
NCLEX Test Plan Reports Comparison of Client Needs Categories to National Population

	2015	2016	2017
Management of Care	64	68	52
Safety & Infection Control	49	55	44
Health Promotion Maintenance	56	62	51
Psychosocial Integrity	47	66	52
Basic Care & Comfort	51	55	43
Pharmacology	54	46	52
Reduction of Risk Potential	56	59	50
Physiological Adaptation	55	62	58

The National Council of State Boards of Nursing (NCSBN) Program Reports provide nursing programs throughout the nation with specific data related to student performance on the NCLEX. The NCLEX-RN Program Report provides information in four primary sections: 1) the Summary Overview, 2) the NCLEX-RN Test Plan Report, 3) the Content Dimension Reports, and 4) the Test Duration/Test Plan Performance Report. Additionally, the Program Report compares graduate's performance on a regional and national level. Faculty intently examined two sections of the Program Report—the NCLEX-RN Test Plan Report and Content Dimension Report—for three cohorts of graduates from the School of Nursing. The Client Needs category is the majority of the Test Plan Report and based on the NCLEX-RN test plan. The test plan is divided into four major categories with two of these categories further organized into six subcategories: 1. Safe and Effective Care Environment, including the subcategories of Management of Care and Safety and Infection Control; 2. Health Promotion and Maintenance; 3. Psychosocial Integrity; and 4. Physiological Integrity, including the subcategories of Basic Care and Comfort, Pharmacological and Parenteral Therapies, Reduction of Risk Potential, and Physiological Adaptation. Table 1 illustrates programmatic percentile rankings in each content area based on the median performance of graduates. Utilizing 50% as a benchmark, Safety and Infection Control rankings dropped from 49% to 44% in two of the three cohorts, whereas Psychosocial Integrity, Basic Care and Comfort, and Pharmacology failed to meet benchmark in only one out of three cohorts during the three years.

The Content Dimension report provides information related to graduates' knowledge within six frameworks that include Nursing Process; Human Functioning; Health Alterations; Wellness/Illness Continuum; Stages of Maturity; and Stress, Adaptation, and Coping. Table 2 demonstrates percentile rankings based on median graduate performance in each of these content areas for the three cohorts examined. Although there were areas below benchmark in all six frameworks, ranging from 32% to 49%, the most significant student learning deficits were identified within Human Functioning, which ranged from 36% to 49% as compared to national percentiles.

Faculty discussions related to findings within the HESI/NCLEX blueprint data led to identification of focus areas to improve programmatic student learning outcomes. Because of mid-low range performance in the Client Needs categories, there was deliberation about whether to focus on one distinct area related to the NCLEX-RN test plan, specifically within the Safety and Infection Control portion, or to address all categories that fell below benchmark. Faculty determined the most effective course of action would be to focus on Safety and Infection Control in the Client Needs area due to the lower percentiles within the past three years and the fact that this category is the basis of the test plan. Some of the Human Functioning aspects, such as Comfort, Rest, Activity, Mobility and Nutrition, may be included as focus areas in the future. Though departmental NCLEX pass rate and HESI scores were acceptable and the majority met benchmarks, faculty expressed a desire to work collaboratively in addressing key curricular and outcomes-based issues in monthly faculty meetings.

The team determined that a comprehensive approach incorporating theoretical and clinical nursing components across the curriculum would result in improved student learning outcomes. The BC and OAA guided faculty development efforts through facilitation of reflection and visualization techniques based on adult learning theory. The session began with faculty identifying the ways students learn to apply safety and infection control concepts in coursework. In this 2-hour "intervention brainstorm session" held in an active learning classroom, BC and OA professionals led faculty in a series or reflective prompts to identify and refine the specific learning intervention that would have the most positive impact on students' infection control performance. Working as teams, colleagues specifically identified where the content was taught throughout the curriculum, as well as how the concepts were applied in clinical experiences. Assignments and activities currently used to introduce, reinforce, and master the safety and infection control knowledge and skills were written on the glass boards and displayed as a gallery throughout the active learning classroom. Faculty participated in a "gallery walk" to process this information relative to individual course content and

Table 2
NCSBN Content Dimension Reports Comparison to National Population

	2015	2016	2017
Assessment	54	57	58
Analysis	58	55	50
Planning	61	68	52
Implementation	54	55	49
Evaluation	55	46	46
Nursing Process			
Protective Functions	59	55	49
Sensory-Perceptual	53	57	49
Com, Rest, Act, Mob	48	54	36
Nutrition	49	57	48
Growth & Develop	53	61	50
Fluid-Gas	62	58	55
Psychosocial Cultural	51	57	52
Elimination	48	50	47
Health Functioning			
Health Alterations			
CV	55	54	48
Endocrine	61	59	60
GI	57	60	52
Reproductive	51	60	56
Integ/MS	49	56	48
Immune	53	51	47
Neuro	54	64	51
Psychosocial	52	56	51
GU	52	57	48
Respiratory	53	61	53
Health Promotion	46	58	53
Health Maintenance	54	49	49
Health Restoration-Acute/Simple	58	58	51
Health Restoration-Acute/Complex	48	66	51
Wellness/Illness Continuum			
Stages of Maturity			
Natal	62	55	49
Childhood	51	55	46
Adolescence	54	70	59
Adulthood	55	61	50
Older Adulthood	60	57	57
Lifespan	47	52	50
Stress, Adaptation & Coping			
Physiologic needs	61	59	49
Self-concept	48	60	55
Role function	53	32	57
Interdependence	57	64	63

understand better where and how the concepts are introduced or reinforced in other courses in the curriculum. Once the safety and infection control content was viewed from a holistic perspective, faculty identified and discussed strategies that could be implemented across the entire curriculum. Suggested strategies included both abstract and concrete exercises such as unfolding case scenarios based on clinical problems and laboratory/simulation activities discussed as patient scenarios versus an isolated psychomotor skill performance. For example, while students practice insertion of indwelling catheters, faculty would discuss consequences of improper technique and potential complications encountered during the procedure. Faculty then divided into small working groups to identify a plan of

action for incorporating safety and infection control concepts into individual courses and discussed criteria and evaluation tools that would best assess students' performance relative to infection control. A timeline for implementation was constructed, and a follow-up meeting was scheduled.

Results

The results of this analysis led to selection of teaching strategies to promote higher order thinking related to safety and infection control content in all courses throughout the curriculum. Evaluation of student learning outcomes in safety and infection control concepts is tracked each semester. The HESI data for the first cohort of students who benefitted from the newly-implemented teaching strategies revealed an aggregate score of 956, which exceeded the 850 benchmark and previous cohort scores. While improvement in student learning is expected, the process has been transformational for faculty and departmental culture as well. Faculty, particularly junior-level colleagues, are taking the lead role in implementing small, yet pivotal changes in courses. Included in the efforts are designing interactive and engaging classroom activities, creating simulation vignettes, leading "brown-bag" sessions for faculty, discussing effective strategies, pursuing data-driven publications in peer reviewed journals, and pursuing professional presentation opportunities related to learning improvements.

Through this collaborative partnership, additional support has been provided to newly on-board faculty and junior faculty (less than 1 year experience teaching) who need more dedicated/structured support for professional growth in scholarly/research-related skills and mentoring. For instance, the BC facilitates a year-long program of professional development for new faculty in the first two years at the university. The New Faculty Scholars (NFS) program combines face time with upper-level administrators, interdisciplinary mentoring groups, and development workshops to aid new faculty in career planning, navigating academic cultures, and connecting to resources related to teaching, research, and outreach activities. In the last two years, 88% of new faculty in the School of Nursing have participated in the NFS program.

Lessons Learned

There were many lessons learned from this collaborative effort implemented to improve student outcomes. These lessons included:

- Make student improvement a strategic goal from administration to the faculty level. This includes increasing visibility of faculty scholarship/research in the areas of teaching and learning, as well as community outreach and scholarship.

- Establish faculty commitment and ownership in the process of improving student learning outcomes, thus ensuring teaching excellence is not only valued, but rewarded in faculty promotion portfolios.
- Strengthen infrastructure to facilitate a faculty team-based model that combines senior and junior-level faculty teams focused on, and committed to, developing teaching strategies that promote student learning of concrete and abstract concepts, publishing findings, and disseminating findings to local, national, and international audiences. Encourage these faculty members to publish their strategies in scholarly journals or web-based resources, such as Quality and Safety Education in Nursing (QSEN) teaching strategies.
- Analyze and disseminate data-driven findings to faculty and stakeholders/administration. Data visualization/dashboard communication is a priority for basing curricular decisions. Additionally, formulation of action plans at the course level should extend beyond student support services.
- Conduct faculty-led workshops for other faculty that spotlight successful strategies or models used in class. Schedule these sessions over the lunch hour as a brown-bag format.
- Participate in interdisciplinary partnerships to incorporate teaching strategies beyond the nursing discipline, and communicate findings and student learning in diverse ways.
- Promote honest dialogue with faculty about personal and professional viewpoints of remediation and mentoring as a skill base. Teamwork is crucial to improving outcomes, but there has to be a shared philosophy of methods of this remediation and student success strategies involving faculty. One of the most transparent conversations we experienced was the perception and concern of moving into a "hand-holding" model of teaching that would not be ultimately beneficial to maturing students and promoting student success. This exchange exposed a need for more congruency of expectations, workload, and role refinement of faculty members and those working in the student success program.
- Construct, promote, and communicate high expectations for both learners and faculty, thus capitalizing on intrinsic and extrinsic motivation to succeed and excel.
- Incorporate innovative technology strategies into future collaborative partnerships: incorporate partnerships with instructional designers and distance learning experts.

References

Adelman, C. (2015). *To imagine a verb: The language and syntax of learning outcomes statements.* Urbana, IL: University of Illinois and Indiana University, National Institute for Learning Outcomes Assessment (NILOA).

Baker, G. R., Jankowski, N., Provezis, S. & Kinzie, J. (2012). *Using assessment results: Promising practices of institutions that do it well.* Urbana, IL: University of Illinois and Indiana University, National Institute for Learning Outcomes Assessment (NILOA).

Blozen, B. B. (2017). The road to NCLEX-RN success. *Journal of the New York State Nurses Association*, *45*(2), 5-12. Retrieved from https://www.nysna.org/sites/default/files/NYSNAJournalv45n2.pdf

Butts, J., & Rich, K. (2018). Ethics in professional nursing practice. In K. Masters (Ed.), *Role development in professional nursing practice* (pp. 355-404). Sudbury, MA: Jones & Bartlett Learning.

Elder, B. L., Jacobs, P., & Fast, Y. J. (2015). Identification and support of at-risk students using a case management model. *Journal of Professional Nursing, 31*(3), 247-253. doi:10.1016/j.profnurs.2014.10.003

Facione, N. C., & Facione, P. A. (1997). *Critical thinking assessment in nursing education programs: An aggregate data analysis.* Millbrae CA: California Academic Press.

Fulcher, K. H., Good, M. R., Coleman, C. M., & Smith, K. L. (2014). *A simple model for learning improvement: Weigh pig, feed pig, weigh pig.* (Occasional Paper No. 23). Urbana, IL: University of Illinois and Indiana University, National Institute for Learning Outcomes.

Giddens, J., & Gloeckner, G. (2005). The relationship of critical thinking to performance on the NCLEX-RN. *Journal of Nursing Education, 44*(2), 85-89.

Hutchings, P. (2010). *Opening doors to faculty involvement in assessment*. (Occasional Paper No. 4). Urbana, IL: University of Illinois and Indiana University, National Institute for Learning Outcomes.

Jeffreys, M. R. (2012). *Nursing student retention: Understanding the process and making a difference* (2nd ed.). New York, NY: Springer.

Kaddoura, M. A., Van Dyke, O., & Yang, Q. (2017). Correlation between critical thinking skills and national council licensure examination for registered nurses' success in accelerated bachelor nursing students. *Teaching & Learning in Nursing*, *12*(1), 3-7. doi:10.1016/j.teln.2016.08.004

Langford, R., & Young, A. (2013). Predicting NCLEX-RN success with the HESI exit exam: Eighth validity study. *Journal of Professional Nursing, 29*(25), 55-59. doi: 10.1016/j.profnurs.2012.06.007

Liu, O., Bridgeman, B., & Adler, R. (2012). Measuring learning outcomes in higher education: Motivation matters. *Educational Researcher*, *41*(9), 352-362.

Lown, S. G., & Hawkins, L. A. (2017). Learning style as a predictor of first-time NCLEX-RN success. *Nurse Educator*, *42*(4), 181-185. doi:10.1097/NNE.0000000000000344

Maki, P. (2002). Developing an assessment plan to learn about student learning. *The Journal of Academic Librarianship*, *28*(1), 8-13.

Mee, C., & Schreiner, B. (2016). Remediation in nursing education today: Review of the literature and considerations for future research. *Journal of Nursing Regulation*, *7*(1), 37-45.

Mills, L., Wilson, C., & Bar, B. (2001). A holistic approach to promoting success on NCLEX-RN. *American Holistic Nurses Association, 19*(4), 360-374.

Montenegro, E., & Jankowski, N. A. (*2017*, January). *Equity and assessment: Moving towards culturally responsive assessment.* (Occasional Paper No. 29). Retrieved from https://learningoutcomesassessment.org/documents/OccasionalPaper29.pdf

National Institute for Learning Outcomes Assessment. (2016). *Higher education quality: Why documenting learning matters*. Urbana, IL: University of Illinois and Indiana University, National Institute for Learning Outcomes Assessment.

Palmer, E. A., Shanty, J. A., Labant, A., & Rossiter, B. (2017). Fostering student success: Turning off practice assessment rationales to improve proctored assessment scores. *Nursing Education Perspectives*, *38*(2), 90-92. doi:10.1097/01.NEP.0000000000000113

Popkess A. M., & Frey J. L. (2016). Strategies to support diverse learning needs of students. In D. M. Billings & J. A. Halstead (Eds.), *Teaching in nursing: A guide for faculty* (5th ed.) (pp. 15-34). Saint Louis, MO: Elsevier Saunders.

Revell, S. M., & McCurry, M. K. (2010). Engaging millennial learners: Effectiveness of personal response system technology with nursing students in small and large classrooms. *Journal of Nursing Education, 49*(5), 272-275.

Romeo, E. M. (2010). Quantitative research on critical thinking and predicting nursing students' NCLEX-RN performance. *Journal of Nursing Education, 49*(7), 378-386.

Schooley, A., & Kuhn, J. (2013). Early indicators of NCLEX-RN performance. *Journal of Nursing Education, 52*(9), 539-542. doi: 10.3928/01484834-20130819-08

Shirrell, D. (2008). Critical thinking as a predictor of success in an associate degree nursing program. *Teaching and Learning in Nursing*, *3*(4), 131-136.

Sujitparapitaya, S. (2014). Achieving faculty buy-in: Motivation performance in learningoutcome assessment. *Journal of Case Studies in Accreditation and Assessment, 3*, 1-22.

DR. LIBBA MCMILLAN, RN PhD, is an Associate Professor at Auburn University School of Nursing, and Chairs the Baccalaureate Evaluation Committee. She has thirty- six years nursing experience; twenty years in nursing education. Dr. McMillan's teaching at the undergraduate, and graduate levels includes population health, professional concepts, advanced nursing theory, quality and safety, and nurse educator practicum. Her research include accreditation and assessment, military Veteran and family member healthcare including focus on sleep disturbances in TBI and PTSD patients and tinnitus, and rural health promotion partnerships. Dr. McMillan has published and presented at international and national conferences throughout her career.

TANYA JOHNSON, MSN, RN, NE-BC is an Associate Clinical Professor Auburn University School of Nursing and has 42 years of nursing experience. She has served in various leadership positions 36 years prior to her more recent academic experience. Mrs. Johnson serves as course leader for senior level leadership courses and is Coordinator for the RN-BSN Online Nursing Program. She has developed study abroad programs in Malawi, Ghana, and Spain and participates in simulation and clinical instruction. She has published and presented at local, state, national, and international conferences. Research interest include NCLEX success, simulation, patient safety, and healthy work environment.

DR. FRANCINE M. PARKER, EdD, MSN, RN, is the Betty McLendon Fuller Endowed Associate Professor at Auburn University School of Nursing, and is the Coordinator of the MSN Nurse Educator Track. She has forty-three years nursing experience with twenty-six in education. Dr. Parker's teaching includes leadership and management, professional concepts, health policy and ethics, curriculum development and evaluation and theoretical concepts. Research interests include NCLEX success variables, nurse moral distress and job satisfaction, centralized v. decentralized nursing units for impact on stress and job satisfaction. Dr. Parker has published and presented at professional conferences throughout her career.

DR. CARALISE W. HUNT is an Associate Professor and Associate Dean for Academic Affairs in the School of Nursing at Auburn University. She has more than 25 years' experience as a registered nurse and 15 years' experience in nursing education. Her primary teaching responsibilities include medical surgical nursing and evidence-based practice. She teaches at both the undergraduate and graduate level. Her area of research is diabetes self-management and she has several publications related to this area as well as teaching pedagogy.

DIANE E. BOYD is the Associate Dean of Faculty Development and the Executive Director of the Faculty Development Center at Furman University in Greenville, SC, USA. Her most recent scholarly publications focus on learning improvement, cognitive science and active learning, the intersection of faculty vitality and student success, and learner motivation. A higher education instructor for over 25 years, she currently teaches interdisciplinary writing seminars on inclusive leadership and the science of creativity.

Storied Sketches: Making Meaning of Culture's Role in Teaching

Alicia Fedelina Chávez
University of New Mexico

Susan Diana Longerbeam
University of Louisville

Catherine Nakai Montoya
University of New Mexico

Patrick C. Lewis-Jose
University of New Mexico

Haeyalyn Muniz
University of New Mexico

Zane J. Rosette
University of New Mexico

Deborah Belone
University of New Mexico

Cynthia Higgins
University of New Mexico

Through anthropological analysis, two professors—one Mestiza (Apache and Spanish American), one Northern-Western European American (Danish, Swedish, German, French, English, and Irish), and six Native American educational leadership doctoral students offer storied sketches of three college professors on intersections of culture and college teaching. Professors took part in a year-long culture and teaching faculty development project and engaged in cultural introspection to understand how their values, identities, and cultural origins influence their teaching and interpretations of students. Researchers used open thematic and metaphorical analysis of published cultural autobiographies, teaching observation notes, and interview transcripts for each professor to develop storied sketches of their meaning making of culture and teaching. Professors' cultural self-reflections yielded original insights about teaching across cultures. Authors share paths forward for culture and teaching introspection and for developing teaching across cultural strengths and ways of being.

It is helpful to look at where you come from to better understand the current perspectives you have, but also to help shape new ideas for the future. – Catherine N. Montoya, 2018

To facilitate complex learning among students, teaching benefits from the strengths and wisdom of many cultures (Chávez & Longerbeam, 2016). When faculty explore cultural selves in relation to teaching, student learning improves, and faculty gain insight into our cultural influences on teaching and interpreting students, as well as how our teaching is experienced and interpreted by students (see 25 culture and teaching autobiographies in Longerbeam & Chávez, 2016). This anthropological study provides insights from and about three professors who participated in a yearlong faculty development project on intersections of culture, teaching, and learning. Culture, a term from the field of anthropology, is a foundation of individual and collective assumptions, values, beliefs, priorities, and behaviors developed by a population over time, shared by a group of people, and passed from generation to generation through teachings by family, culture, Tribe, and community (Deal & Peterson, 2009; Kuh, 1993; Mead, 1971).

Frameworks of Culture

Peoples around the world and within the United States live within distinctive frameworks of culture. Peoples of Color often have distinct cultures that differ in sometimes profound ways from the competitive, linear, component based, individualistic norms often underlying U.S. higher education, where

academic and teaching cultural characteristics originate primarily from German conceptions of knowledge and research (the scientific method) and Oxford, English conceptions of teaching (lecture, recitation, exam, and writing). Yet even Northern European cultures vary across a wide range of academic and personal cultural practices.

"The twenty-first century is a turning point in the country's history in which opportunities exist to change the cultural paradigm of education and society as a whole." – Patrick C. Lewis-Jose, 2018

With this article, we explore cultural identities, meaning making, and teaching practices to explore the richness of culture faculty bring to their teaching, while identifying cultural assumptions made, values enacted, and possibilities discovered through development of teaching across cultural strengths. These professors engaged great courage to delve deeply into their own sense of self, culture, teaching, and interpretations of students. Each faced discomfort as they, explored, and sometimes questioned their own cultural assumptions, engaged with students, crafted new pedagogies across a balance of cultural norms, and made profound changes in their own teaching across cultural strengths.

Culture, Self-Reflection, and Teaching: A Review of Literature

Deep writing and reflection develop understanding of our identities (Garrod, Kilkenny, & Gomez, 2007), open us to greater learning in our teaching (Cajete, 1994), and challenge us to think in new ways.

Reflection upon ourselves transforms our teaching through the introspective process (Shim, 2018).

> The ability to self-reflect, to grow as a person is an important skill we can all utilize. Working within our Indigenous communities we are constantly reflecting on our ability to serve our students and communities more effectively. What worked in our communities might not work in our current community, so it is imperative that we always take the time to reflect on our practice to better ourselves and the opportunities or experiences we provide others. – Zane J. Rosette (2018)

Reflecting upon our early cultural learning and how we were taught to learn provides insight into assumptions we make and implicit biases we hold about student learners and their learning (Longerbeam & Chávez, 2016). Uncovering our early and sometimes implicit messages about learning yields a trove of insight into our teaching, into the reasons why we teach the way we do, and into what lies underneath our interpretations of students. Teaching is profoundly influenced by our own cultures of origin and yet for most takes deep introspection to understand (Chávez & Longerbeam, 2016). Reflection is a powerful tool for uncovering cultural influences in ourselves and within academic systems and practices, as well as for naming experiences with oppression and access to power (Grande, 2004; Ibarra, 2001; Longerbeam, 2016; Mihesuah & Wilson, 2004; Toyosaki, 2014). Also, reflection is useful for recognizing and acknowledging privileges, especially when access to privilege is difficult to name (Garrod et al., 2007; Longerbeam, 2016). Reflection on social identities such as culture—especially those related to power, privilege, and oppression— positions us for a deeper understanding of students (Toyosaki, 2014). Reflection yields insight into how students experience us as teachers and increases our ability to understand students' lived experiences (Flores Carmona & Luschen, 2014) as learners:

> In moments of grace I sometimes step outside myself and watch my cultural performance from afar. How do students experience me?—especially those from cultures other than my own? Is my teaching meeting their learning? I am embarrassed to not-know. Few critical mirrors are offered, only normalized ones. My culture is dominant in the academy. Words, gestures, pedagogies—I am amazed to not-know how I am perceived culturally -- how I move into the world, speak, act out culture. Occasionally the not-know is eased—I am offered the gift of cultural knowing; so I seek it out, because the not-knowing diminishes learning. And student learning is my heart. – Susan D. Longerbeam

Many faculty ask students to reflect as a part of course requirements, advising sessions, and class sessions. Yet exceptional teachers ask of students only what we are willing to ask of ourselves (Rendón, 2009; Tisdell, 2003). When we commit to both reflexive practice and engagement with students, we may find courage to reflect deeply upon ourselves (Shim, 2018).

> I met myself in a wood -- startled by who I really was, greeting myself with all my bumps and bruises, all my idiosyncrasies, all my strengths, all my fears. I found joy and discomfort, sometimes simultaneously, as I journeyed into knowing and becoming my authentic self as a teacher. I looked into the mirror of my cultural self and there found marvelous possibility in the cultural selves of students. – Alicia Fedelina Chávez

There is little to be found in existing literature on how culture influences teaching or ways that teachers' cultures of origin influence their teaching overall, choices and use of pedagogies, or interpretations about students. Most existing identity and college teaching literature is focused on race, oppressive teaching behaviors toward specific populations such as microaggressions, methods to develop identity tolerance among students, and retention of ethnic populations of students in college classrooms. There is sparse existing literature specifically on how culture influences college teaching (Longerbeam & Chávez, 2016). However, some extant research focuses on college student learning (Chávez, Ke, and Hererra, 2012; Chávez & Longerbeam, 2016; Rendón, 2009), communication across cultures in the classroom (Toyosaki, 2013), silence in the classroom across cultures (Covarrubias & Windchief, 2009), and more generally on adult learning (Tisdell, 2003), higher education (Ibarra, 2001), and scholarly reflexivity across cultures (Tomaselli, Dyll, & Francis, 2008). One promising trend is a new area of study, focused on higher education within the Society for Applied Anthropology, which has been developing over the last few years. However, most of the focus is on areas other than college teaching such as cultural aspects of policy and structural systems. This study is meant to contribute a deep glimpse into meaning made by three professors about intersections of their own cultures of origin with their teaching.

The Culture and Teaching Faculty Development Project

Thirty-seven faculty—19 from Northern Arizona University with an enrollment at that time of over 30% students of color, and 18 from the University of New Mexico with an enrollment of over 62% students of

color—participated in a yearlong project to develop their teaching across cultures. These faculty engaged in cultural introspection to understand how their cultural values, assumptions, behaviors, and beliefs influence teaching practice and interpretations of students. Culture and teaching activities with participating faculty included a two-day retreat, readings, regular meetings, a culture and teaching autobiography, consultations, and teaching observations (followed by feedback and suggestions). Project leaders observed, consulted with, and encouraged faculty to apply and share how they developed their teaching practices across cultures over time. At a final gathering of faculty from both campuses, participants shared innovative teaching practices, insights, and self-knowledge developed about culture and college teaching.

The Study: Journey of Inquiry

This study was designed as qualitative and anthropological to explore deeply the underlying cultural values, assumptions, behaviors, and beliefs influencing participant identity, teaching philosophy, interpretations of students, and pedagogical practices. Data collection methods included reflective faculty writing, interviews, and teaching observations. Faculty participants wrote and submitted a culture and teaching autobiography to identify and make meaning of underlying cultural values and assumptions influencing their teaching (see Longerbeam and Chávez, 2016 for the instructions on writing a culture and teaching autobiography). Faculty authors carried out teaching observations and conducted 90-minute interviews. For this study, three faculty, two from NAU and 1 from UNM, were selected for deep cultural case analysis. The three faculty were selected from the 37 participants to provide a diversity of perspectives and background in ethnicity/cultures of origin, academic subject area, institution, and class type/size (see additional participant information in the results section).

Participant data sets for each professor included an interview transcript, published culture and teaching autobiography, and teaching observation notes. Each data set was analyzed by the authors applying open thematic (Jones, Torres, & Arminio, 2006) and auto-reflexive ethnographic analysis (Tomaselli et al., 2008) to consider concepts of self and other, as well as metaphorical/symbolic (Wilson, 2008) analysis. Special attention was given to analysis of cultural norms including values, assumptions, and beliefs, along with how professors made meaning of them in relation to their lives, teaching, and students. Thematic data analysis across the full 37 faculty participants was published earlier with a *Model of Cultural Frameworks in Teaching and Learning* (see Chávez & Longerbeam, 2016).

To make meaning of our analysis of culture and teaching for each of the three professors, we developed our own concept of "storied sketches" to interweave deep cultural analysis, meaning making, and discussion by blending the tradition of a teaching story—an ancient and continuing form of facilitating learning (Cajete, 1994) and conducting every day research (Wilson, 2008) common within Indigenous cultures—merged with components of case findings. To make meaning of each professor's teaching, we offer "storied sketches": "storied" to share stories of their teaching and making meaning through deep cultural narratives underlying each individual's way of being as teachers and human beings and "sketches" to acknowledge that even through thick description (Creswell & Miller, 2003), it is possible for us to offer only a glimpse of who they are and the exploratory introspections they engaged in during a year of delving into self, culture, teaching, and learning. A key aspect of these storied sketches is weaving a "mix of voices": a singular written voice of professors from their published culture and teaching autobiographies; a conversational voice between researchers and professors in semi-structured interviews; and researcher voice describing teaching practices from observing professors during their teaching as well as adding interpretation about intersections of culture and teaching. Crafting deeper, lengthier storied sketches of each professor allowed us to bring their teaching alive for readers through a mix of voices and storied illustrations about teaching, to offer complex interpretations, and to make meaning of findings about intersections of culture and teaching.

We would like to thank Professors Kashanipour, Oakes, and Montoya for their generosity and courage in the use of their names so that we could analyze and quote from both their published autobiographies and their interviews, as well as describe their teaching through our observations.

Results & Discussion: Storied Sketches of Culture, Teaching, and Learning

To enhance deeper understandings, we chose to weave interpretations, meaning making, and discussion through individual storied sketches of three faculty, each highlighted in its own subsection. Each begins with a quote by the professor that we hope captures the spirit of their teaching, then describes, illustrates, and makes meaning of key aspects of cultural origins and their influences on teaching.

We would like to note and emphasize that the focus of this study and project was to have professors explore their own cultural origins and the ways in which these origins influence their teaching practices and interpretations of students. This means that culture as academic course content was not the focus. Of the three

professors storied here, only Professor Montoya, who teaches in Ethnic Studies, included cultural academic content and pedagogical activities designed to have students explore culture. We experience in our research, and in our work with faculty development, that higher education discourse often confounds and prioritizes course content on culture or a pedagogical focus on student cultures with instructor cultural influences on our own teaching practices and interpretations of students. We find that faculty are often more comfortable avoiding reflection about culture within themselves, as well as denying any relationship between culture and their academic subject, teaching practices and philosophy, or student learning. We urge the criticality of faculty introspection about how our individual cultural values, assumptions, and beliefs influence our teaching, as well as our interpretations of students. For some, culture is unconscious and was not spoken of overtly within their upbringing, and yet there are ways to learn about our cultural origins through anthropological analysis and reflection (see Chávez & Longerbeam, 2016 for reflective exercises).

Rippling into the world: R.A. Kashanipour

"I believe it to be vital for students to reflect on the particulars of their own conditions to identify relations of authority and power that shape their world. For instance, in many of my courses, I require students to collect and reflect on the presence of issues raised in the class as they appear in the world around them and shape their perceptions" (Kashanipour, 2016, p. 147)

Professor Kashanipour, a teacher of history at Northern Arizona University, creates deep intersectional meaning from his cultural upbringing with who he is, how he teaches, and the depth of reflection and learning he wishes for students. In his culture and teaching autobiography (Kashanipour, 2016), he provides insight into experiences as an immigrant child growing up on the outskirts of Houston, Texas and how those experiences influence his teaching philosophy and practice. Central to his identity are ethnicity, culture, and history, which he writes were "constantly reinforced within my family household as well as a feeling of being a conspicuous outsider" (Kashanipour, 2016, p. 146). He explains, "I was five years old in 1979 when I learned that my family was marked as distinct, foreign" (Kashanipour, 2016, p. 143). Yet he also writes, "Unlike in the outside world, I found few such sharp edges within my household" (Kashanipour, 2016, p. 145). Persian and Jewish heritage were sources of pride. His background is important in both its contrasting nature as well as in equal levels of importance each identity had in his life. Kashanipour's family on his father's side identified as Persian, which connected them to ancestors and ancient

civilization: "To be Persian was to be tied to ancient traditions that valued family, convention, and conservatism" (Kashanipour, 2016, p.147). Yet with this is a confluence of American life:

> My parents taught myself and two siblings patriotic songs and told stories of founding fathers. We celebrated summers at the community pool and made periodic voyages to the American Jerusalem of Las Vegas and Disneyworld. We played weekend softball. My Mother hosted weekly Bible studies while my Father was a regular at the Indian casinos. All this was the norm of life in suburban America (Kashanipour, 2016, p. 145).

In addition, Kashanipour's father was a practicing Shi'a Muslim and his Mother a "German Jewish devout evangelical Christian" (Kashanipour, 2016, p.145) closely tied to the history of Jewish people in Germany. Being Jewish and German necessitated the inclusion of history within his family, particularly, that which pertained to experiences during World War II. Though his Mother practiced Christianity, she identified with her Jewish background in terms of family experience with the Holocaust. As Kashanipour notes, "Conversations of my maternal family rarely extended beyond the savageness of the twentieth century" (Kashanipour, 2016, p.147). Judaism is an important part of the family's historical narrative and Kashanipour's own identity and worldview. He writes, "The importance of ethnicity, culture, and history were constantly reinforced within my family household" (Kashanipour, 2016, p.146). Such practice shows the value placed by family on ensuring all three remained a significant part of the family's experience in the United States. While various aspects of culture and history were reinforced within the family, the differences within the family facilitated a culture of acceptance and identity that transcended Muslim and Christian Jew. Backgrounds were celebrated, while five languages—Farsi, Arabic, German, Yiddish, and English—were spoken in their household. The dynamics and diversity of the family facilitated acceptance.

Perhaps the most profound results of the diversity within Kashanipour's family are not the distinctions themselves, but rather the acceptance, celebration, and embrace of differences. Viewed from historical and contemporary perspectives, Muslims and Jews are not expected to coexist, yet Kashanipour's family defies such perceived logic. This resistance, in turn, created a new identity dynamic for Kashanipour as he writes the following:

> "In the day-to-day relations of my family, I witnessed that individuals forge relationships regardless of supposed boundaries. I learned of the malleability of

culture and that distinction was always. In this vein, I always experienced identity as fluid and subject to change" (Kashanipour, 2016, p.147).

Kashanipour learned the value of individual negotiations of culture, while continually recreating culture through contributions to it. He facilitates learning among students through this complex lens.

Interrogating history. Kashanipour's pedagogical practices and larger goals for student learning are influenced by his upbringing, education, and cultural identity and yet transcend them as well. He shares in his autobiography, "I stress that history is a product of the intersection of power, perception, and experience, which are central to Paolo Freire's theory of critical pedagogy" (Kashanipour, 2016, p. 147). Considering Kashanipour's experiences as a cultural outsider during his formative years, it is perhaps not surprising that he would subscribe to a theory of critical pedagogy in which the established order is questioned. Kashanipour describes three aims in his teaching. The first is the desire to "push students to confront stereotypes, inequities, and obfuscations in the contemporary world by exploring their historical roots" (Kashanipour, 2016, p. 147). Individuals and families often relate to history as part of personal history, such as Kashanipour's maternal family remembering their history with the Holocaust. He points out that stereotypes have their own historical roots and are often normalized in contemporary society. His second aim is to "get students to move beyond their everyday world to critically examine the past" (Kashanipour, 2016, p. 147) and to "challenge common perceptions and popular approaches" (Kashanipour, 2016, p.148). Oftentimes the past is a difficult and messy thing to address, but it can also be a foundation for resolution or new and deeper understanding: "As individuals wrestle with beliefs and practices they borrow widely from their unique and distinctive backgrounds" (Kashanipour, 2016, p. 148). Kashanipour's third aim in teaching history reflects his experience growing up as a perceived outsider by teaching "the methodology of history as a method of skeptical analysis" (Kashanipour, 2016, p.148). His family, targeted on the basis of geopolitics, is a part of his story; student learning benefits from his challenging and fruitful approach of grappling with the complexities of ethnicity and nationalism throughout geopolitical as well as personal history.

In his interview, Kashanipour described how he provides "students methods and models of how people have dealt with these things," referring often to intersecting geopolitical stories students bring to the classroom. He takes students further by providing tools that go beyond the classroom and allowing them to contend with historical as well as current challenges in a meaningful way. For him it is equally important to engage all students, especially when it comes to

confronting stereotypes and difficult historical legacies. Kashanipour considers it shortsighted to think that history does not play a role in contemporary society, yet he finds history often left out of discussions that involve challenging topics such as race, ethnicity, prejudice, and discrimination. Intersections of these topics are purposeful and evident in his teaching practices. The challenge he poses to students is to introspect, seek outcomes that enhance students' understanding, facilitate wisdom, and improve human conditions. In his interview, Kashanipour further explained his values, expectations, and wishes for the students he teaches:

> At a basic level, my fundamental objective is for students to be a little uncomfortable in the sense of seeing the world from a different perspective. This could be historical, to look at things through different lenses that they have experience with and know a little bit about, but the ability to look at problems from different perspectives. This could be cultural, or historical, individual, or personal and that sort of thing. That's my overall objective, and I have content objectives too. More specifically that objective is that they are aware of the contradictions of the world we live in, and as contradictions evolve things come out of that like social justice and human rights.

Kashanipour sees the importance of helping students contextualize their perspectives through studying history. He is purposeful in facilitating students' questioning and interpreting history, as well as in developing greater understanding in part through their own sense of culture and identity. Kashanipour reflects in his autobiographical writing on his youth:

> …[[E]xperiences] taught me to value the individual distinctions of everyone, to recognize that divisions are often products of broader social and political forces and celebrate those that stand in opposition to injustice of the dominant norm, which is what I try to impart to my students (Kashanipour, 2016, p. 148).

Kashanipour teaches students to use the lens of historical and cultural analysis within their own lives, as well as within a larger societal context, to develop knowledge and encourage their development. His culture and life experiences led him to effect change and he wants to have an impact on students and empower them to effect change in their own ways. He challenges students to explore their own histories and to approach history through skeptical analysis. For students of color, analysis is an opportunity to explore position and power in relation to dominant society. For students from dominant cultures, analysis is an opportunity to explore privilege and challenge biases. Kashanipour believes that while it is

important for People of Color to reconcile their histories and place in society, it is equally important for members of the majority in society to reconcile historical legacies and confront their impact on contemporary society. As a professor, Kashanipour provides opportunities for students to reconcile history through critical pedagogy and encourages them to reflect inwardly and outwardly, individually as well as collectively.

A Divided Heart: Leslie S. Oakes

"I work to make my classes colorful, noisy at times, physically active, and fun. We draw accounting concepts. Sometimes we chant (students have to remember certain accounting rules). Sometimes we act things out; we pound on our desks whenever we talk about annuities due. We boo liabilities and cheer assets" (Oakes, 2016, p. 88).

Professor Oakes is an accounting professor at the University of New Mexico who teaches large entry-level courses with uniquely engaging and relational practices and a determination to understand students and facilitate their learning and success. In many ways her culture, as well as gender and upbringing, profoundly influence her teaching. At age eight, she lived in Boise, Idaho with her father, mother, and sisters. In her autobiography she describes her mother as Swedish, yet born and raised in Mexico, and she writes that her father "was born to a poor family in the Ozarks, but his family became middle-class by bottling Coca Cola" (Oakes, 2016, p. 86). She shares early scenarios from her life depicting origins of her values of individualism and hard work while navigating contradictions between her own beliefs and gendered, heterosexual, middle class societal expectations. She describes sitting on the floor with her sister looking over the *Sears and Roebuck Catalog*—picking out wedding dresses, furniture for her first home, and baby things—where all the models were White. She explains, "This scenario captures much of my deepest identity or what Bourdieu would call the habitus, which is White, middle-class, heterosexual, and gendered" (Oakes, 2016, p. 85). She describes her family expectation to get an education and career and that they worked hard, did not complain or ask for help, and overcame emotions. Oakes expands in her autobiography on her upbringing in relation to race, language, family, and culture:

…[W]e speak English, …[W]e watch White people speak English on TV, …[O]ur teachers are White Americans, … [W]e have no close extended family, …in Boise girls get married and have families, …[W]e are taught that we are individuals and responsible for our own lives and actions (Oakes, 2016, p. 85).

These identities, relationships, and experiences serve as the foundation for her core values, as well as some her family and she consciously chose to leave behind. Oakes writes of sitting with her Sister at the local YWCA with a group of

anti-war activists, "My parents, who do not believe in God, have joined the Unitarian Church…so that my Sisters and I will meet other non-believers…we sing anti-war songs and songs of the civil rights movement" (Oakes, 2016, p. 86). These actions displayed by her parents do not fit into the social expectations of a White, middle-class family. She goes on to mention a debate about the church becoming a sanctuary and having heated discussions about the war with her Father. "I have become a rebel child, although I still like to look through the *Sears Catalog*" (Oakes, 2016, p. 86).

Oakes describes an individualistic culture in her writing and interview, and she uses phrases such as "I", "my sister," "my parents," "others," implying an independent view of life which separates herself from others. She defines herself based on personal traits that are distinct (not part of a group). Her descriptions of family life are also individualistic: "We have no close extended family and are expected to leave home when we go to college, never to return" (Oakes, 2016, p. 85), and, "We were a solitary family and we spent long hours in our separate rooms reading or working" (Oakes, 2016, p. 86). It is these first-hand experiences that become engrained in Oakes and later shape her relationships and subsequently her ways of teaching, relating to, and interpreting, students. Yet these are also values for which she sometimes feels contradiction and conflict in her teaching.

Oakes' parents served as her first teachers. She witnessed contradiction in her parents' actions creating in her what she describes in her autobiography as a "divided heart." Neither of her parents grew up middle class. Oakes focuses in her autobiography on contradictory actions and beliefs within her family, sharing that her father went to Harvard and "became an outspoken supporter of civil rights in all its forms" (Oakes, 2016, p. 86), yet, "his family continued to refer to a part of Tulsa as 'N(word)town' decades later" (Oakes, 2016, p. 86). She shares that her mother, who also attended Harvard, "was born…in a household that did not express emotions, didn't show weakness, and was extremely solitary" (Oakes, 2016, p. 86). Her Mother could sing and tell jokes only in Spanish, giving an impression that these activities were not present in her own Swedish culture of origin. Her sisters and she were encouraged to read from the family's extensive library that included *Das Capital* and *Mein Kompf*, yet her Mother threw out all books of fairytales, which she writes in explanation,"…because she didn't think it was good for girls to read about mythical princes riding to the rescue" (Oakes, 2016, p. 86).

Oakes muses in her autobiography, "I am the conflicted child of conflicted people" (Oakes, 2016, p. 87). Her parents struggled with the Vietnam War, the Civil Rights Movement, and their belief in God. She writes that her father's actions throughout his life were confusing to her: "Though he remained a registered Republican, after college

never voted Republican again" (Oakes, 2016, p. 86). Her mother was no different, writing that when she asked about the meaning of life, her mother told her, "There was no meaning of life" (Oakes, 2016, p. 86), yet pointed out that her mother crossed the border for nearly 30 years of her life to serve others. These contradictions impacted her and influence her teaching. Her conflicted heart appears throughout Oakes' autobiography, interview, and teaching observation, influencing her teaching in areas of diversity, relationships, and her own growth and learning.

Diversity. Oakes values diversity instilled by her parents. In her interview she reflects on her conscious attempts to diversify her teaching: "I'm trying to find other ways to allow people of all different cultures to participate in a way that is comfortable for them." She creates opportunities for many processes of learning and relating. During our teaching observation, Oakes made personal connections with students in a variety of ways, such as using student table tent name tags and moving around the room encouraging individual students and groups of students, often through humor. She seems to understand that a one-size-fits-all education model does not work in the ever-changing world her classroom represents. Oakes makes a conscious effort to use a wide diversity of pedagogies to engage students with the subject, as well as with her and with each other. She acknowledges struggles with elements of her upbringing as she works to ensure that she is using a more balanced cultural approach to teaching and learning.

Relationships. Oakes narrates conflicted memories about childhood relationships through her writing. In her interview, she communicated her attempts to build strong relationships in her life and classroom and described her own education: "I love to take classes as a social act, sort of." Researchers remarked during her interview, "You really use humor a great deal and interact constantly with students during your class." Creating a constant positive narrative is important, especially in diverse classrooms where many students are likely to originate in highly relational communities (Cartledge & Kourea, 2008). In her autobiography she explains, "I have encouraged them to work together and have set up workshops on the weekend and Monday night where they can meet and where I can help them complete the assignments" (Oakes, 2016, p. 87). When writing about a quiet student who rarely talks and is helping another student, she notes, "Good. Now he'll have a friend" (p. 87). Oakes characterizes her teaching role as facilitator, and she believes learning is a collective, relational process.

Growth through students. Oakes strives to work through her conflicted feelings and values through interaction with students. In her autobiography she describes how her long-held values of timeliness and personal responsibility conflict with the very real lives students have to negotiate, and in some ways she

navigates this because of her dedication to their learning and success:

> I am about to start class. Most of the students have turned in their assignments. When the clock in the room clicks to 9:30, I pick up the assignments, put them away in a bag. Out of sight. Unreachable. Several students come dashing into the room late. Their assignments are not stapled. Three have not brought a folder as instructed. I am annoyed. I will not accept their smaller, weekly homework assignments late. "No way," a student protests when I refuse to take her assignment. "Yes way," the class responds. They already know the rules about late work, but they can drop almost half of these small assignments, so the penalty is small.
> I am torn.
> I do not like students being late. I find it personally insulting on some deep level. Work is work, and play is play. Individuals are responsible for their own destiny and must follow the rules. Also, I know from experience that most of the students who are late will not have completed their assignments anyway. Most but not all and I really want students to succeed. I want them to feel good about themselves. Our lives are not fair. Some of these students have family obligations, commute from other places, are struggling with PTSD, and have other barriers to education that I never faced. "OK," I concede. Just this one time (Oakes, 2016, p. 87).

Through her interactions with students and attendance to reflection and empathy Oakes develops understandings outside her own life. Oakes shares in her interview, "I don't like competitions unless they are fun and no one really cares who wins," and, "I just can't stand to have students be humiliated in my class or feel frustrated..." She expresses the importance of making students feel included because feelings of humiliation, embarrassment, and failure interfere with student learning. She feels internal struggle and shares in her autobiography, "Maybe somewhere in my subconscious I am still trying to overcome the feeling that as a woman I don't really know what I am doing, that, after all, I am still a silly girl" (Oakes, 2016, p. 89). As a child, she felt doubt and conflict; yet as an adult, her relationships with a diversity of students encourage her to respond in new ways.

Teaching as looking in a mirror.   Oakes regularly looks through a mirror into her self-described divided heart and conflicted cultural sense of self. She is at times unsure, yet through reflection and through her students she gains evolving perspectives. In her interview Oakes discusses how she "struggled internally with allowing students even a little bit of leverage on due dates, classroom groupings, and

grading… [yet learning how] profound this flexibility is on learning, student feelings of safety in learning, and on their trust of me as a professor." The strategies she uses in her classroom are not strategies she experienced as a student, yet through her own self-reflective process, she realizes the real needs of learners in her classroom. Increasingly she strives toward a diversity of cultural strengths, sometimes against her own comfort.

In her autobiography Oakes describes her values as both individualistic and collaborative, considering her work with students through a rear-view mirror of her life. In her autobiography, Oakes clearly shows and expresses individualistic values as though writing headlines from her childhood, "education is work, and work is serious, solitary, and silent, done in black ink on white paper" (Oakes, 2016, p.88), and "some people (people with formal education in recognized colleges) are smarter and better than others" (Oakes, 2016, p. 88). Yet she deeply wants all students to succeed—including those raised with values very different from her own. Oakes demonstrates much more than the individualistic values common to her childhood—perhaps showing the rebel evident in her upbringing. Oakes now uses many techniques that move outside of more individual ways of learning by engaging her students through mind, body, emotions, and spirit, thus overcoming cultural assumptions of her youth and the pressures to conform within academe. She writes in her autobiography,

> I pair up students in class. I call pairs to the board to demonstrate solutions to problems. I encourage students to work together on everything except two in-class exams. I have those exams in part because of the pressure of colleagues who only have in-class individual exams and in part because I am conflicted (Oakes, 2016, p. 88).

Oakes' experiences are filled with continuous social interactions she characterizes as White middle-class, yet she also experiences social justice and diversity events, and diverse social interactions, allowing her to consider life through differing lenses. Through stages of her life and through many kinds of relationships, she continuously evolves. Oakes muses in her autobiography, "I now understand that students have divided hearts, because I have a divided heart" (Oakes, 2016, p. 89). This internal conflict, with reflection, allows and assists her to grow and develop as a teacher.

Teaching with No Box: T. Mark Montoya

"So, how do I reach those students who have put me in a box? I reach them with humor, active learning, sharing my teaching thoughts out loud, and continual support for them as learners. Due to these 'box' restrictions, I emphasize the need to 'unlearn'" (Montoya, 2016, p. 168).

Professor Montoya teaches in Ethnic Studies at Northern Arizona University and understands that his cultural, ethnic, and racial identities are indelible parts, including how students might interpret him as in a particular identity "box". He shares that as a teacher he doesn't ask students to think outside the box but asks instead who created the box and what the box is for, and then encourages them to challenge its very existence. He writes in his autobiography about his ethnic and cultural identity, "…I variously identify as Latino, Chicano, Hispano, Mestizo, and as a borderlander native and college professor of Ethnic Studies" (Montoya, 2016, p. 164). He describes himself as a "deliberate daydreamer," writing about an elementary teacher comment, "Mark's work is improving, but he still needs to work at a faster pace. He daydreams quite a lot" (Montoya, 2016, p. 165). Montoya sees his work as deliberate and slow paced—and explains that daydreaming allows him to see things. In his interview he shares that he pays attention as a teacher and human being, even noticing when someone is wearing fun socks, explaining that this seeing allows him to create learning environments that encourage intimacy and provide comfort for sharing. He learns best through his own experiences, writing, "I am not a narcissist, but I play one in the classroom" (Montoya, 2016, p. 163). He wants students to experience their own deliberate daydreams and see themselves and the world more deeply.

Montoya values language, the use and power of it. He interprets storytelling as a use of language and upholds the power of personal narrative. He writes in his autobiography, "In the classroom, I am a storyteller. I did not always think of storytelling as a pedagogical tool; I just know that I usually remembered the stories my college professors shared" (Montoya, 2016, p. 164). He believes students are more apt to share their stories and become more capable of seeing their own learning through the cultural processes within which they were raised; as a result, he strives to include many kinds of pedagogy in his teaching. Montoya sees diverse learning as a path in life, not only his but his students: that like him, they are able to process and understand broad topics. He narrates being a "narcissist" in his classroom, and at first glance the title to his autobiography, *Rage, Courage, Encourage: Citizenship in the College Classroom*, might lead some to think about anger rather than how he defines himself. He shares that rage, courage, and encourage are *not* neutral concepts. Instead, he interprets, "…they involve respect, well-being, dignity, empowerment, democracy, justice, and particularly belonging" (Montoya, 2016, p. 164). He explains that we must be just a bit narcissistic to learn from ourselves, our own experiences, our own interpretations.

Rage. From Montoya's perspective, rage is about passion that leads to courage and creates a personal desire to learn. In his autobiography, he writes the following:

I first had to make clear that its meaning was not solely based on anger or violence. It is not. Rage is also about passion. My idea is that rage will lead to courage, and having courage allows me to encourage; thus, I create some sort of messy teaching and learning sequence. (Montoya, 2016, p. 163-64)

He compares his educational experiences to his Grandfather's—how they differed and were similar in experiencing vast challenges in educational pathways. Both experienced rage at lost opportunities and barriers; both crafted bridges to their futures. Montoya shares that rage allows students to become passionate so they too can create their own bridges through challenges and hardship along their paths. He writes that in his classes he asks students "Who are you? How do you identify? Where do you come from? Where do you want to go? Take some time to deliberate. Daydream!" (Montoya, 2016, p. 165). He explains, "This is how I encourage my classes" (Montoya, 2016, p. 165). In his interview he shared that once he is able to establish a passionate environment within his classes, students are more apt to share their stories and begin to recount their personal narratives through an academic lens of Ethnic Studies. Montoya facilitates students exploring their own passion: passion to continue toward their degree, to choose a profession, to craft a life. He understands that for students to share their stories, he first has to create an encouraging learning environment where students feel safe, a critical aspect of teaching in a multicultural context (Chávez, 2011). He wants students to experience their own and others' feelings, thoughts, and perspectives so they learn ways that ethnicity, culture, race, and other identities influence individual lives and larger societies. At times Montoya does want students to feel rage as anger—rage at inequities and injustices in both individual lives and larger societies.

Courage. For Montoya, courage is about discovery and being the change as a teacher as well as in facilitating courage within students so they too will go out to influence the world. He uses a variety of pedagogical techniques to facilitate understanding, self-exploration, and courage to act in students. During his observed class session, he showed a brief film clip to introduce a concept about societal inequities, followed by a facilitated conversation with the class, drawing out student insights, feelings, and impressions. He wrote terms on the chalkboard in four columns for visual and organizational effect – historical, institutional, ideological, and personal, referring to examples from social media platforms in everyday use by students (including Facebook and Twitter), to situate learning in student lives (Baxter-Magolda, 2001). Not only did Montoya use tools, he also used a variety of pedagogical discussion skills that encouraged students to stay with difficult material. Montoya deftly facilitated student discussion, applying multiple modalities to involve and include all students: drawing out the quieter ones and asking the more vocal ones to hold onto their thoughts so that all could contribute. He deftly moved about the room, leaning forward towards students who spoke. Montoya used silence as well, pausing after asking a complex question to elicit critical thinking. The silence served to deepen student answers; at times discomforting for some students, yet the complexity of their answers affirmed its value.

Encourage. "There is no box" (Montoya, 2016, p. 163). Montoya writes in his autobiography that problems exist because particular meanings or values are placed on people, identity, and cultures. He uses discussions and examples of racism to deconstruct the structure of problems, asking students to discern the patterns. In his autobiography he shares a racial/ethnic contrast to illustrate,

> Several years ago, an influential mentor, who was known for his work on critical race theory (see Olson, 2004), told me that he as a White man, had it easier in Ethnic Studies classes because no matter how much he talked about racism, about privilege, and about systems of oppression, he would always be taken as neutral and objective. I on the other hand would be another 'minority' complaining. (Montoya, 2016, p. 168)

When Montoya teaches and advises without the box, students are able to draw on their strengths and their hardships, realizing that experiences allow them citizenship in the classroom and elsewhere. Their lives and identities exist and matter. Montoya writes in his autobiography about his Father's frequent refrain, "I come home with a hurt back, so you can come home with a hurt brain" (Montoya, 2016, p. 167). To further explain his father's meaning, sacrifices were made, and the road was paved for him to obtain an education, so coming home exhausted and tired from educational work is nothing to complain about.

Montoya urges that we too can look at our ancestral history and what it means for our teaching, learning, work with students, and academic subjects. In his autobiography he discusses the role of culture in his own identity,

> In this critical inventory of self and of community, I was to talk about how my culture influences my teaching and vice versa, but my culture is always there. My culture cannot be taken as a variable that makes me who I am. It is who I am. I belong to the borderlands—the vague and undefined zones in all of our lives. The borderlands are where cultural formations are variable, continual, and ever changing. Who am I? I am a citizen, and I play one in the classroom. (Montoya, 2016, p. 169)

In his interview, Montoya discusses a doctoral student. He richly describes the student, "as the long bearded, long haired student who rides his motorcycle and is cool." He refers to him as "…family, where like a real family each member is a different person, and different personality." Time has allowed him to experience the process of relationship, to be respectful of the student who calls him mentor. His role as his teacher creates space and confidence for the student to create a bridge to his own scholarship.

A wide range of classroom activities assist students to recognize the essential humanity and value of individuals and Peoples. Because his academic area is Ethnic Studies, Montoya not only introspects about his personal cultural influences on his teaching pedagogies as Kashanipour and Oakes do, but also focuses on culture as academic content. Though culture as academic content is beyond the scope of this study and project, there are many ways faculty can facilitate learning among students about links between academic subjects/knowledge building and personal/population identities (see Ke, Chávez, Causarano, & Causarano, 2011). Montoya used a variety of pedagogies in the observed class session, including creating opportunities for students to share stories of their home life, thus sharing windows into many identities and traditions. Using an exercise called "Stereotypes", Montoya showed people in everyday photographs of varying ethnicities, shapes, sizes, and dress, having students call out their impressions and then facilitating what was helpful and problematic in various characterizations and terms. This activity encouraged students to question their own stereotypes and humanize individuals and groups in the images. In addition to tailoring classroom activities and lessons toward expanding students' worlds, Montoya facilitates unpacking assumptions.

Being a deliberate daydreamer allows Montoya to reach many students through teaching across cultural strengths. His deliberatively multifaceted pedagogical approach creates an environment where students can experience rage, courage, and encouragement, thus facilitating their citizenship in the college classroom and the world.

Our Path Forward: Key Practices to Introspect Culturally and Teach Across Cultures

There are many ways we can teach more purposefully to understand our own cultural influences and develop teaching across cultural strengths. You might consider integrating the following three practices into your teaching life: go inward, learn from and with students, and develop a practice of engaged pedagogy.

Go inward

At some point during this year of faculty development, all 37 faculty shared that until they did so in this project, they hadn't reflected upon connections between their own culture(s) and their teaching. This was the case even for those who study culture (e.g., anthropology, Ethnic Studies). Developing understandings of how our culture(s)s influence our teaching assists us to understand and reach students through our teaching. The alienating impact on students when faculty are unaware of their underlying cultural influences represents a profound insight from this study. Opportunities to connect and to facilitate learning expand greatly when we recognize how we are interpreting students, as well as how students experience us.

We begin going inward by reflecting upon and analyzing our own values, assumptions, and beliefs and where they originate in teachings from families, cultures, and places, as well as religions, spiritualties, and philosophies. We can consider how each manifest in our teaching behaviors, course design, and perhaps most importantly how they manifest in our interpretations and judgements about students based on our own cultural mores. We can engage with students to get to know them and ask about *their* most natural ways of learning, communicating, and being in learning relationships. Finally, we can gradually integrate some of what we are learning from students and from contemplation of ourselves to balance cultural ways of being and doing in our teaching.

Learn from and with Students

Students are powerful resources for faculty. A helpful question we can ask students is, "When you really need to learn something, what do you do?" It can be startling to discover the many and varied ways students learn. Asking students to identify techniques used by other professors in ways helpful to their learning is also useful. Designing discussions to gather ideas about teaching can also be invaluable. Regardless of the path, facilitating the why and asking students to share what learning processes are helpful to their learning will deepen our insight. Asking can be uncomfortable since we are often expected and expect ourselves to be the authority, yet partnering with and learning from students is a powerful way to develop teaching to enhance student learning.

Develop a Practice of Engaged Pedagogy

As we worked closely with faculty, we noticed most used a static teaching plan for class sessions and did not deviate even when students were obviously disengaged. Student learning benefits, especially across cultures, when we adapt our teaching on the spot when learning or engagement is not happening. We observed many ways to increase engagement: asking students to show or share their insights with the class as they work individually or together, noticing when students are disengaged and then adding humor or a different activity, and even gently teasing to pull students back

into engaged learning. To engage students and their learning, we must observe, then diverge from our plan to "shake things up" and draw students once again into curiosity, involvement, learning, and relationship with the subject, with each other, and with us.

Transformed Teaching Starts with Us

Kashanipour's outsider skepticism and rippling out; Oakes' compassion, fun, relationality, and divided heart; and Montoya's passion, rage, and courage are important aspects of their cultural origins: reflection upon them improved and informed their teaching across cultures. Cultural self-reflection, self-analysis, and self-observation lead to greater effectiveness as teachers across cultures. Knowing and innovating through our own cultural strengths as well as the strengths of students, enable effective pedagogy. What worked for learning in our personal upbringing, education, and communities might not work in our current learning community or in facilitating learning of specific students, so making time to observe and to reflect on our teaching practices, assumptions, values, and beliefs improves learning possibilities. We urge you to introspect culturally, engage with students, question assumptions and judgments about students, and develop cultural balance across teaching.

References

Baxter-Magolda, M. B. (2001). A constructivist revision of the measure of epistemological reflection. *Journal of College Student Development*, *42*(6), 520-534.

Cajete, G. (1994). *Look to the mountain: An ecology of indigenous education*. Rio Rancho, NM: Kivaki Press.

Cartledge, G., & Kourea, L. (2008). Culturally responsive classrooms for culturally diverse students with and at risk for disabilities. *Exceptional Children, 74*(3), 351-371.

Chávez, A. F. (2011). Toward a multicultural ecology of teaching and learning: A critical review of theory & research. *Journal of Excellence in College Teaching, 21*(4), 49-74.

Chávez, A. F., Ke, F., & Herrera, F. (2012). Clan, sage, and sky: Indigenous, Hispano, and Mestizo narratives of learning in New Mexico context. *American Educational Research Journal, 49*(4), 775-806.

Chávez, A. F., & Longerbeam, S. D. (2016). *Teaching across cultural strengths: A guide to balancing integrated and individuated cultural frameworks in college teaching*. Sterling, VA: Stylus Publishing.

Covarrubias, P. O., & Windchief, S. W. (2009). Silences in stewardship: Some American Indian college students' examples. *Howard Journal of Communications, 20*(4), 333–352.

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed). Thousand Oaks, CA: Sage Publications.

Creswell, J. W., & Miller, D. L. (2000). Getting good qualitative data to improve educational practice. *Theory into Practice, 39*(3), 124-130.

Deal, T. E., & Peterson, K. D. (2009). *Shaping school culture: Pitfalls, paradoxes, & promises* (2nd ed.). San Francisco, CA: Jossey-Bass.

Flores Carmona, J., & Luschen, K. V. (2014). *Crafting critical stories: Toward pedagogies and methodologies of collaboration, inclusion, and voice.* New York, NY: Peter Lang Publishing.

Garrod, A., Kilkenny, R., & Gomez, C. (Eds.). (2007). *Mi voz, mi vida: Latino college students tell their life stories*. Boston, MA: Cornell University Press.

Grande, S. (2004). *Red pedagogy: Native American social and political thought*. Lanham, MD: Rowman & Littlefield.

Ibarra, R. (2001). *Beyond affirmative action: Reframing the context of higher education*. Madison, WI: University of Wisconsin.

Jones, S. R., Torres, V., & Arminio, J. (2006). *Negotiating the complexities of qualitative research in higher education: Fundamental elements and issues*. New York, NY: Routledge.

Kashanipour, R. A. (2016). Family and geopolitics in a culturally alienated society. In S. D. Longerbeam & A. F. Chávez (Eds.), *Going inward: The role of cultural introspection in college teaching* (pp. 142-149). New York, NY: Peter Lang.

Ke, F., Chávez, A. F., Causarano, P., & Causarano, A. (2011). Identity presence and knowledge building: Joint emergence in online learning environments? *International Journal of Computer Supported Collaborative Learning,6*(3)*, 349-370.*

Kuh, G. D. (1993). *Cultural perspectives in student affairs work*. Lanham, MA: American College Personnel Association.

Longerbeam, S. D. (2016). Finding community within White distance. In S. D. Longerbeam & A. F. Chávez (Eds.), *Going inward: The role of cultural introspection in college teaching* (pp. 107-113). New York, NY: Peter Lang.

Longerbeam, S. D., & Chávez, A. F. (2016). *Going inward: The role of cultural introspection in college teaching.* New York, NY: Peter Lang.

Mead, M. (1971). *Coming of age in Samoa*. New York, NY: Harper Perennial.

Mihesuah, D. A., & Wilson, A. C. (2004). *Indigenizing the academy: Transforming scholarship and*

empowering communities. Lincoln, NE: University of Nebraska Press.

Montoya, C. N. (2018). *Providing tools for students*. Unpublished manuscript.

Montoya, T. M. (2016). Rage, courage, encourage. Citizenship in the classroom. In S. D. Longerbeam & A. F. Chávez (Eds.), *Going inward: The role of cultural introspection in college teaching* (pp. 162-169). New York, NY: Peter Lang.

Oakes, L. (2016). A mixed-up history, a divided heart. In S. D. Longerbeam & A. F. Chávez (Eds.), *Going inward: The role of cultural introspection in college teaching* (pp. 85-89). New York, NY: Peter Lang.

Olson, J. (2004). *The abolition of White democracy*. Minneapolis, MN: University of Minnesota Press.

Rendón, L. I. (2009). *Sentipensante pedagogy: Education for wholeness, social justice and liberation*. Sterling, VA: Stylus.

Rosette, Z. J. (2018). *Conflicted child of conflicted people*. Unpublished manuscript.

Shim, J. M. (2018). Inquiry into (in) ability to navigate dissidence in teacher education: What it tells us about internalized racism. *International Journal of Teaching and Learning in Higher Education*, *30*(1), 127-135.

Tisdell, E. J. (2003). *Exploring spirituality and culture in adult and higher education*. San Francisco, CA: Jossey-Bass.

Tomaselli, K. D., Dyll, L., & Francis, M. (2008). "Self' and "other": Auto-reflexive and Indigenous Ethnography. In N. K. Denzin, Y. S. Lincoln, & L. Tuhiwai Smith (Eds.), *Critical and Indigenous Methodologies* (pp. 347-372*)*. Thousand Oaks, CA: Sage Publications.

Toyosaki, S. (2014). Pedagogical love as critical labor: Relational pedagogy of Whiteness. *Qualitative Communication Research, 2*(4), 411-433.

Wilson, S. (2008). *Research is ceremony: Indigenous research methods*. Winnipeg, Canada: Fernwood Publishing.

_____

ALICIA FEDELINA CHÁVEZ, Ph.D. (Apache & Spanish American) is an Associate Professor in Educational Leadership at the University of New Mexico and has served as a Senior Diversity officer, Dean of Students, and Campus Executive Director. Her scholarship centers on cultural frameworks of collegiate teaching and leadership. Publications include five books, including *Teaching across Cultural Strengths* and *Going Inward: The Role of Culture in Teaching and Learning*, as well as journal articles such as "Clan, Sage, and Sky: Indigenous, Hispano, and Mestizo Narratives of Learning in New Mexico Context"; "Islands of Empowerment: Facilitating Multicultural Learning Communities"; and "Toward an Ecology of Multicultural Teaching and Learning."

SUSAN DIANA LONGERBEAM, Ph.D. (Danish, Swedish, German, French, English, and Irish) is Associate Professor in Counseling and Human Development at the University of Louisville. Her scholarship focuses on culture, campus climate and student success in higher education. Recent publications include two books on culture and college teaching, *Teaching Across Cultural Strengths* and *Going Inward: The Role of Cultural Introspection in College Teaching.* Articles include "Challenge and Support for the 21st Century", "'We Cannot Reach Them': Chinese Undergraduate Student Perceptions of the U.S. Campus Climate", and "Putting Old Tensions to Rest: Integrating Multicultural Education and Global Learning to Advance Student Development."

CATHERINE NAKAI MONTOYA (Diné) is a Student Programs Specialist in Native American Studies and a doctoral student in the Native American Leadership in Education Cohort in Educational Leadership at the University of New Mexico. She received her Bachelor of Arts in Native American Studies from Dartmouth and a Master of Public Administration from UNM. She has worked in higher education since 2004, first at the University of Notre Dame and then UNM since 2007. Her professional work in higher education is mainly in student services, including financial aid and scholarships, Native student programming, and academic advising.

PATRICK C. LEWIS-JOSE (Tohono O'odham and Akimel O'odham) is an elementary teacher and doctoral student in the Native American Leadership in Education (NALE) cohort in Educational Leadership at the University of New Mexico. He received his B.A. in Comparative Studies in Race and Ethnicity at Stanford University. He also received an M.A. in Education at the Stanford University College of Education. He received an M.A. in Educational Leadership from UNM with administrative licensure. He has been an educator for 13 years, and his academic interests include serving American Indian communities by developing strong education systems based on Indigenous language, culture, and knowledge.

HAEYALYN R. MUNIZ (Jicarilla Apache) is a second-year doctoral student in Educational Leadership at the University of New Mexico (UNM) and currently works as an Education Specialist with the Jicarilla Apache Department of Education. Her areas of focus are early childhood education, college and career readiness, and higher education for Indigenous students.

ZANE J. ROSETTE, M.Ed. (Chippewa-Cree) is a third-year doctoral student in Educational Leadership at the University of New Mexico and is currently serving as the Elementary Head of School at the Native American Community Academy (NACA) in Albuquerque, New Mexico. He established NACA Elementary in the fall of 2016 as an extension of the school that previously served students in 6th through 12th grades. His current scholarship centers on success factors of Native American students in K-12 public schools.

DEBORAH J. BELONE, M.A. (Diné) is an elementary principal on the Navajo reservation and a doctoral student in the Native American Leadership in Education cohort at the University of New Mexico. She received her B.A. in Sociology/Human Services and Interdisciplinary/Bicultural Studies from Fort Lewis College and an M.A. in Educational Leadership from the University of Northern Colorado. Deborah has worked in elementary education since 2000. Her scholarship continues to be a catalyst of change in developing an aware consciousness in thinking outside the box and in the perspective of Indigenous pride to strengthen the leadership and cultural pride among the Dine youth.

CYNTHIA A. O'DALE-HIGGINS, M.A. (Diné), is an Education Specialist SR at the Utah State University-Blanding. She served as Outreach Specialist for Navajo Technical University under their grant *Tribal Colleges and Universities National Science Foundation*, Higher Education Director for the Ute Mountain Ute Tribe and middle School & elementary teacher.

Using a Student-Staff Partnership to Map, Understand, and Develop the Digital Curriculum

Tom Clark and Clarissa Simpson
University of Sheffield

Digital literacy is increasingly central to the experience of learning and teaching in higher education. This paper details the design, implementation, and results of a student-staff partnership project that utilized a mixed method research strategy to "map" the digital curriculum within a sociology program, measure the digital capacity of students across the degree (n=104), and explore their experience of that curriculum (n=12). The findings reveal that digital capabilities of undergraduates did develop over the course of their degree. However, not only is the development of digital curricula often without signposts, the results suggest that we should not assume that all students are "digital natives." Indeed, many struggle to adapt to the technological demands upon entering higher education while others fail to connect educational uses of digital technology to their everyday lives. In detailing the tools that were developed as part of the project, the paper goes on to outline the value of student partnerships in the context of information and digital literacy, as well as higher education more generally.

Using a Student-Staff Partnership to Map, Understand, and Develop the Digital Curriculum

The purpose of this paper is threefold. Firstly, it builds on the work of Joint Information Systems, or JISC (2014); Killen and Chatterton (2015); and Simpson and Clark (2018), to provide a concrete account of how student partnerships can be used to assess and develop the "digital curriculum" within degree level programs, in this case in the Department of Sociological Studies (SCS) at the University of Sheffield (TUoS). In using the term "digital curriculum" we are referring to those interrelated aspects of a degree program that are directed toward introducing, developing, and enhancing skills associated with information and digital literacy. Secondly, in taking a research-led approach, it demonstrates some of the nuances associated with embedding the skills associated with information and digital literacy within higher education programs. Finally, the paper also offers some reflection on the value of student partnerships in developing digital literacy. The paper will be of use to those looking to mobilize conceptual frameworks of digital literacy into the practice of learning and teaching at modular and program levels, as well as those looking to gain an insight into how digital literacy is experienced by undergraduate students.

Digital Literacy, Employability, and Student-Staff Partnerships

While the term remains contested, "digital literacy" broadly refers to the ability to understand and use digitized information, as well as the various tools and platforms associated with it (Gilster, 1997). However, more specific definitions, as well as what it might mean in practice, have proved difficult to maintain given the continued developments in technological capability (Belshaw, 2012). Moving on from initial concerns with both access and ICT skills, information and digital literacies are now considered to encompass a wide range of abilities, skills, and competencies (Ng, 2012). JISC (2014), sponsors of the UK Developing Digital Literacies Programme, for example identify seven key elements of digital literacy: digital scholarship, information literacy, media literacy, communications and collaboration, career and identity management, ICT literacy, and learning skills.

Many commentators have also made the distinction between more concrete skills associated with technological skill and the ideas, capacities, and audiences that construct digital environments (Lankshear & Knobel, 2008). Rather than focusing on a substantive typology, Sharpe and Beetham (2010) also provide a hierarchical framework of digital literacy that imagines learners as progressing through the arenas of access, skills, practices, and, at the very top of the framework, attributes. This is where learners fully realize their digital capacity by being able to make informed choices about how to use technologies. Students at this level are engaged, connected, confident, adaptable, intentional, and self-aware, and they can respond to the technological needs of their environments and their own potential (see also Sefton-Green, Nixon, & Erstad, 2009).

The importance of developing digital literacy is also increasingly being recognized in government policy. According to a recent estimate by the UK Government, there are now over 1.4 million jobs in the digital sector, a figure which is predicted to rise by another one million by 2023 (DCMS, 2016). Another recent report produced by the House of Commons, entitled, "The Digital Skills Crisis," also highlighted that 90% of new jobs will require digital skills and that 72% of employers would be unwilling to even

interview candidates who did not have basic digital capability (HoC, 2016).

To this end, the UK Government has long recognized the need to address digital skills in the early stages of education (HoC/STC, 2016). Information, communication, and technology (ICT) has actually been a compulsory requirement for all pupils aged between 5 and 16 since the Education Reform Act of 1988. However, implementation proved problematic across the sector, and it was often poorly received and not universally applied to the same standard (Buckingham, 2013). After further consultation in 2013, the UK's Department of Education launched a new "computing curriculum" (DoE, 2013). Alongside Mathematics, Science, English, and Physical Education, this is now a requirement at all four "Key Stages" of the national curriculum.

However, the higher education sector has been somewhat slower to respond to both of the needs of the increasingly digitized workplace (Flavin, 2017). Drawing on survey data taken from over 8,000 HE students, a recent report by Newman and Beetham (2017) variously highlights that while students are broadly receptive to using digital technology in their studies, only 50% agreed that their course prepares them for the digital workplace. Similarly, a House of Lords committee report, entitled "Make or Break: The UK's Digital Future," also recently highlighted that the sector 'had not responded to the urgent need for reskilling' and re-emphasized the need for higher education institutions (HEIs) to provide programs that develop digital capabilities (HoL, 2015).

The reasons why digital development has been slow are inevitably complex (see Flavin, 2017). However, a number of commentators have highlighted how teaching practitioners play a key role in delivering programs that embed practices associated with digital literacy (CLEX, 2009; Friesen, Gourlay, & Oliver, 2014; Goodfellow & Lea, 2013). Evidently, the capacity of any practitioner to build responsive digital curricula is also constrained by the capabilities of the HEI in question (Flavin & Quintero, 2018; Lea & Jones, 2011). Regardless, there is a growing interest in the role of student-staff partnerships in developing digital literacy (Kileen & Chatterton, 2015). While instrumental, and uncritical, uses of the term "student partnership" conceive students as little more than administratively expedient consultants, more considered approaches to partnership emphasize consultation, involvement, and participation (HEA/NUS, 2011). According to one influential review, student-staff partnerships variously emphasize authenticity, inclusivity, reciprocity, empowerment, trust, challenge, community, and responsibility (Healey, Flint, & Harrington, 2014). This means that partnership working between staff and students is about the nature of relationships and engagements, just as much as they are an outcome or product of the process. It is "an ethos rather than an activity" (NUS, 2012, p 8).

There are some very specific reasons why student partnerships are useful in the context of digital literacy, particularly where change is a desired outcome (Flint, 2015). Indeed, it is exactly for this reason that Killen and Chatterton (2015) argue that student-staff partnerships are particularly effective in developing digital literacy within degree-level programs. While the idea of a divide between digital migrants and "digital natives" is overdrawn—there is diversity both within and between each group (Bennet, Maton, & Kervin, 2008; Henderson, Selwyn, & Aston 2015; Jones & Binhui, 2011)—the distinction does emphasize that there are key differences between staff and students with respect to the design, delivery, and experience of HE-level programs. For example, while teaching practitioners can operate the levers of change within a program, as outsiders they are unable to routinely access the insider knowledge and experiences of the student body. This includes how students make use of rapidly evolving digital technology for the purposes of learning, but also what they would like to see developed or constrained. Similarly, students and staff have different networks, and they have different digital competencies, too. Partnership working allows at least some of this diverse expertise to be a part of the process of learning and teaching.

With these issues of digital literacy, employability, and the benefits of student-staff partnership in mind, this paper details the implementation of a mixed-method research strategy that used a model of student-staff partnership to accomplish the following: map the digital curriculum within an undergraduate sociology degree program, in this case, based within the Department of Sociological Studies (SCS) at the University of Sheffield (TUoS); measure the perceived digital capacity of students with respect to program development; and explore their experiences and expectations of digital literacy as they move through their program. More specifically, the project aimed to accomplish the following:

1. Map the digital curriculum within a sociology program using JISC's model of digital literacy (2014): digital scholarship, information literacy, media literacy, communications and collaboration, career and identity management, ICT literacy, and learning skills
2. Design and deliver a "self-efficacy" questionnaire based on the JISC model assessing perceived digital capacity amongst current students at the end of each year of study (n=112)
3. Conduct focus groups/interviews with students to explore expectations and experiences of digital literacy within SCS with each cohort.

In detailing both the process and results of each stage, the paper provides a means to map, assess, and explore aspects of the digital curriculum. Following a description of both the nature of the partnership and the program structure, each element of the project will be presented in turn. We would expect that each component of the study can be adapted for replication at other institutions and programs other than sociology. Similarly, while we direct our attention to undergraduate programs, the tools we have developed can be applied to graduate level courses.

Background Context

This project was funded by the University of Sheffield's "Inside Knowledge" scheme. The broad purpose of the initiative was to create student-staff partnerships that could affect significant change in a specific aspect of learning provision within the institution. In doing so, it would aim to 'foster the academic community in departments, with the purpose of making the experience of education better for staff and students alike' (McKay & Bailey, 2017). During the second semester of the 2016-2017 session, the scheme provided modest funding for three partnerships that were designed to effect significant change, and one of these was this project. The funding was directed toward the costs incurred by the department for both staff and student time. Once funding was secured through a competitive tendering process in December 2016, the student partnership position was advertised in January and appointed according to university employment guidance. Bringing a nominated member of the staff and a student together as co-researchers and advocates, the partnership specifically aimed to provide evidence-informed change with respect to digital curricula (see Simpson and Clark, 2018, for further discussion).

The project was completed within the Department of Sociological Studies (SCS) and directed toward the digital curriculum embedded within its undergraduate provision. SCS currently offers two core undergraduate programs: BA (Honors) in Sociology and BA (Honors) in Social Policy and Sociology. These programs typically have around 80 to 100 students per year. The courses are designed to explore the key issues and debates within sociology and social policy, and they are aimed toward the application of sociological insight to social problems and policy solutions. Learning and teaching within SCS is both research-led and inquiry-based in nature, and there is also an increasing emphasis on both employability and personal and professional development.

The degrees are earned over a period of three years, with each year requiring the completion of 120 credits. These come in the form of a number of core and optional modules that are worth 10 or 20 credits. During year one there are 100 credits of core material, and only 20 credits are optional. There is a further 60 core credits and 60 optional credits during year two, with the 40 credit "dissertation module" being the core requirement of year three. During the 2016-2017 session a total of thirteen 10-credit modules were offered during year one, twelve 20-credit modules in year two, and twenty 20-credit modules during year three.

Modules are typically delivered through a mix of lecture and seminars and/or workshops. These are variously supported by a Blackboard-style virtual learning environment (VLE). While coursework essays are common in optional modules, research reports, research posters, websites, reflective tasks, research reports, and policy briefings all feature within the core assessment portfolio. Electronic submissions are expected with electronic marking and associated plagiarism checking software also the default requirement across the programs. As part of their registration agreement, all students have access to a range of software. This includes Google Apps for Education and various Microsoft Windows packages, including Office.

Design, Implementation, and Results

Curriculum Mapping

A number of HEIs have sought to establish institution-wide frameworks of digital literacy (see Halfpenny & Brown, 2016; Evangelinous, Holley, & Kerrigan, 2016; and, Killen, Beetham, and Knight, 2017). However, there remains a paucity of pedagogical tools explicitly devoted to mapping the sequence and content of digital curricula within HE level programs. As a result, we chose to both take inspiration from the "Building Digital Capability" checklist and adapt Jisc's (2014) seven area framework of digital literacy to create a tool that could be used to map digital curricula. More specifically, this meant assessing modules with respect to digital scholarship, information literacy, media literacy, collaborations and communications, career and identity management, ICT literacy, and learning skills.

Indeed, given that many programs are entirely constituted by modular content, we chose to assess these areas at modular level with the idea that this would then enable us to identify those points that introduce, develop, and enhance digital literacy across the entire program. With this in mind, we took a holistic approach to the mapping exercise in terms of examining module content, associated tasks, and assessment. This enabled us to consider not only the formal requirements of the module in terms of aims, learning objectives, and assessments, but also the often diverse range of tasks and activities that can contribute   toward   these   requirements.

Table 1
Module Mapping Tool Used to Assess Digital Literacy Within Modules

Domain	Red	Yellow	Green
Digital Scholarship: To participate in emerging academic, professional and research practices that depend on digital systems	No material relating to the study of 'the digital society'	Some indirect material relating to aspects of 'the digital society'	Module is explicitly concerned with 'the digital society'
Information literacy: To find, interpret, evaluate, manage and share information	Skills associated with information literacy not required by the module	Module tacitly requires information literacy but is not specifically reflected upon	The module has elements that are explicitly associated with information literacy
Media literacy: Critically read and creatively produce academic and professional communications in a range of media	No requirement to engage with forms of media beyond baseline expectations necessary to answer exams/produce essays	Requirement to critically engage with different forms of media as part of the module	Module explicitly requires media/digital production activity
Communications and collaborations: To participate in digital networks for learning and teaching	Collaboration not required as a part of the module	Group work features within the module, but not explicitly associated with digital networks (although these might be used)	Group work via digital networks required by the learning outcomes
Career and identity management: To manage digital reputation and online identity	No material relating to digital identities and reputation	Module covers material relating to digital identities and reputation	Explicit instruction about the production and management digital identities and reputation
IIC literacy: Adopt, adapt and use digital devices, applications and services	No engagement with digital platforms are required by the module	Module requires engagement with digital platforms	Learning outcomes are explicitly directed to digital platforms
Learning skills: Study and learn effectively in technology-rich environments, formal and informal	No engagement with technology-rich environments for the purposes of learning	Informal engagement required with technology-rich environments	Immersive technological environments required to achieve learning outcomes

To assess a module, we deployed a nominal level of measurement that was analogous to a "traffic light" system. This allowed us to chart the curriculum against a pre-specified criterion that broadly alluded to "not present" (red), "implicitly present" (yellow), and "explicitly present" (green). For example, in terms of 'collaboration and communications', there is difference between having to do group work that engages with digital systems as a formal part requirement of the module (green), group-facilitated individual work that might involve digital systems (yellow), and much more effervescent group work that occurs within a particular learning context, such as a seminar (red). To this end, we specifically codified the mapping tool to provide some internal reliability to the process. This is presented in Table 1.

Given the nature of the partnership and our relative expertise and experiences of the program, we initially assessed all the modules within the program independently using both module material and our respective knowledge/experience of the program. We then compared and contrasted our findings. The purpose of this dialogue was not an exercise in inter-rater reliability, although we were pleasantly surprised about how much agreement it produced. Instead, it was a collaborative exercise to use our relative positions to identify points of discussion that would then enable us to clarify what we understood by both the measurement and our interpretation of it. In some cases, points of discussion emerged due to one of us missing something in the module documents and in others because we were not aware of some module activity.

While these discussions are too lengthy to rehearse here, to provide an illustrative example we will again take the example of collaboration and communication. There is a difference between collaborative work that is specifically and directly facilitated by digital platforms

Table 2
Results of Module Mapping Exercise

Domain	Year One			Year Two			Year Three		
	Red	Yellow	Green	Red	Yellow	Green	Red	Yellow	Green
Digital Scholarship	5	8	0	6	4	2	13	4	3
Information Literacy	0	7	8	0	6	6	0	5	15
Media Literacy	11	2	0	6	4	2	4	13	3
Communication and Collaboration	12	1	0	8	3	1	10	9	1
Career & Identity Management	10	3	0	8	2	2	15	3	2
ICT	0	9	4	0	8	4	0	17	3
Learning Skills	0	12	1	0	11	1	0	18	2

and those where the nature of the group work is more serendipitous. Google platforms, for example, have extensive collaborative functions, but these are unlikely to be utilized in 'within seminar' tasks (red). However, upon discussing the issue, we quickly realized that group work "between seminars" could result in collaboration that was digitally facilitated (yellow), and all formally assessed group work necessarily utilized communicative digital tools as a requirement of the submission process. A presentation with accompanying slides, for example, requires students to engage with digital platforms, whereas other tasks, such as completing an online ethics form for a research project, similarly require collaborative processes of communication.

Recording the results on a color-coded spreadsheet, we completed this process for all modules on the UG program in 2016-2017: 13 in year one, 12 in year two, and 20 in year three. Table 2. provides a summary of our findings.

A number of key points can be made from the results of the module mapping exercise. Firstly, and perhaps most importantly, there is clearly something of a digital curriculum in place, and the level of content appears progressive as students move through the degree program. All modules had at least two elements of digital literacy embedded within them. Further, while students will not take all modules that are offered, opportunities to engage with aspects of information and digital literacy do increase across the program. There is a clear increase in complexity, for example, in the areas of information literacy and media literacy that would be difficult to "miss" regardless of module choice. The requirement to demonstrate ICT literacy is also high and remains consistent throughout the program. On the other hand, while engagement with communications and collaborations looks to be low across the first two years, tasks around "group working" are actually

embedded across a series of four core modules so that by year three group working is normalized and implicitly embedded within a much larger range of modules. Elsewhere, while engagement with digital scholarship does decrease between year one and two, opportunities to explicitly engage with the topic also increases. That said, engagement with issues around career and identity management are much more limited within the program. While there is some increase in complexity at year three, an inspection of the modules also revealed that these do not take place in the core curriculum and would easily be missed. It is also quite apparent that the enhanced use of technology to enable students to "study and learn effectively in technology-rich environments, formal and informal" was limited. While there were examples of good practice in this respect, these came from just two members of staff. The relatively high number of modules judged to be yellow was simply a result of university-level provision. Indeed, the exercise revealed that much more could be done to enrich the virtual learning environments associated with the program.

Measuring Digital Capacity

Having identified that there was a digital curriculum to speak of, we then attempted to measure perceived digital capacity amongst students. That is, we made some assessment of how the curriculum impacts student development. At which point it is worth making conceptual distinction between ability and capacity. Whereas digital ability is a series of specific technological skills, digital capacity is concerned with perceived confidence to adapt to change, and in this particular context, changes in technology are inevitable. Calvani, Cartelli, Fini, and Ranieri (2008), for example, argue that digital competence is not just the result of

mastering a particular technological tool or the application of instrumental knowledge. Instead, building digital capacity involves adapting pre-existing knowledge to unknown technologies. Therefore, it seemed more desirable to make an assessment of perceived confidence in adapting present skills to future demands rather than measuring specific abilities now. Indeed, the mapping exercise had already provided a concrete description of the skills and abilities associated with digital literacy across the programs. The aim of the survey, therefore, was to assess students' confidence in their ability to adapt these skills in novel contexts.

To accomplish this, we developed a survey of digital capacity in relation to the key arenas of the JISC model that was informed by Bandura's self-efficacy questionnaires (Bandura, 1997). This approach aims to measure perceived confidence in a given area and attempts to capture someone's general belief in their capabilities to produce given attainments. According to Bandura (2006), perceived efficacy not only affects behavior directly, but also has impact on goals and aspirations, affective dispositions, and the perception of barriers and opportunities in the social environment. Conceptually and empirically distinguishable from intention, self-esteem, locus of control, and outcome expectancy, self-efficacy constructs emphasize "can do" rather than "will do." The purpose of an efficacy scale is not to assess a global trait and is instead to examine a differentiated set of self-beliefs that are linked to distinct realms of functioning. While these sub-domains may co-vary, multiple measures are employed to reveal the extent of someone's perceived capacity to function within those realms (Bandura, 2006).

To this end, self-efficacy scales were designed to measure perceived capabilities in the seven sub-domains within the JISC (2014) model. Each sub-domain was considered to be multidimensional in nature. That is to say that there are distinct capacities that constitute capability within each of the JISC domains. For example, information literacy variously requires the capacity to locate, evaluate, and reference research. Although inter-related, these are three distinct activities. In the interests of usability, each sub-domain was constituted by three items on the questionnaire. Participants were asked to rate the perceived strength of their capacity achieve a stated task 'on a regular basis' using a scale ranging from "cannot do at all" (0) through "moderately can do" (50) to "highly certain can do" (100).

Digital scholarship was measured by three scales that included being able to: understand emerging discussions relating to "the digital society," apply scholarly insight to everyday digital practice, and appraise emerging literature relating to developments in digital technology. ICT was measured through the perceived capacity to adopt new devices, updates, and applications; use digital skills to help solve problems or make decisions; and manage data responsibility. Media literacy was assessed through the capacity to creatively produce academic communications, use different media to present ideas, and design digital media for accessibility and usability. Measures for "communications and collaborations" included being able to participate in digital networks for learning, use digital platforms for effective for team working, and use digital applications to communicate. Measures for "career and identity management" included the capacity to manage privacy settings in social media, keep personal and professional identities separate, and update online profiles. Learning skills included being able to listen to podcasts or watch online videos relating to areas of interest, engage with different software to enhance learning experiences, and access material relating to learning interests. Finally, the measures for "information literacy" included having the capacity to run advanced searches using a range of tools (e.g. using filters, advanced search tools etc.), having a range of strategies for judging the credibility of digital sources, and respecting copyright by referencing sources correctly.

Students were opportunity sampled within the context of core lectures, seminars, and workshops during the latter half of semester two (n_{total}=104). While this strategy proved relatively successful for years two and three (n_2=42, and n_3=45), attendance in year one core lectures was poor (n_1=17), hence, the relatively low number of respondents, representing approximately one fifth of the first-year cohort. Scores for each item were combined to produce an index score for each subdomain. The summary statistics for each of the sub-domains are presented in Table 3.

Reflecting the general findings of the mapping exercise, descriptive analysis of Table 3 demonstrates a growth in perceived capacity of each sub-domain between year one and year three. That is to say, those students who were approaching the end of their degree program had a greater confidence in their digital capacity than those at the end of their first year. At the end of year one, levels of literacy are highest for information literacy, career and identity management, and learning skills, with scores being comparatively lower for digital scholarship and media literacy.

The steepest learning curve, so to speak, can be seen between year one and year two students, with confidence rising in all areas. However, while this growth continues into year three in the subdomains of ICT literacy, communications and collaborations, information literacy and learning skills, there are slight reductions in digital scholarship, and career and information management between year two and year three. There is also a large, and negative, difference in capacity in media literacy. Indeed, media literacy records the lowest level of perceived capacity in each year across the sub-domains.

Table 3
Summary Statistics by Domain

Domain	Year	Mean	Median	SD
	Y1	54.2	53.3	14.7
Digital Scholarship	Y2	65.8	70	15.7
	Y3	65.1	66.7	17.7
	Y1	68.2	63.3	11
Information Literacy	Y2	72.1	73.3	11.9
	Y3	74.3	76.7	16
	Y1	54	53.3	17.6
Media Literacy	Y2	65.2	66.7	16.3
	Y3	58.9	60	22.2
	Y1	61.6	63.3	12.9
Communication and Collaboration	Y2	72.4	73.3	12.9
	Y3	77	80	15.7
	Y1	68.9	70	14.6
Career & Identity Management	Y2	75.5	73.3	13.3
	Y3	74.4	76.7	15.8
	Y1	58.7	56.7	13.4
ICT	Y2	66.6	66.7	13.9
	Y3	70.1	73.3	16.8
	Y1	68.2	63.3	18
Learning Skills	Y2	72.1	73.3	14.4
	Y3	74.3	80	16.5

The rise and fall in perceived levels of media literacy is likely to be due to core activity within level two research methods modules that focus heavily, and explicitly, on introducing aspects of media production within assessments. While the module mapping exercise revealed there are a number of opportunities to engage with media literacy at level three, these are often only tacitly present within modules, usually in the form of enhanced coursework assessments such as reports, presentations, policy briefings etc., and it may be the case that these are not being clearly labelled as media literacy activity. It is also worth highlighting that there is a comparatively large amount of variation in the perceived capacity of media literacy at year three. Given the group-based nature of media literacy activity in year two, it may be that while some students are developing capacity, others are able "avoid" this by relying on more enthusiastic members of the group to which they have been assigned. The negative difference between year two and three with respect to career and identity management may also be accounted for by an increasing awareness of the rapidly approaching need for employment.

The largest positive difference in capacity occurs between year one and year three in the area of communications and collaborations. That is to say that third year SCS students are more confident in using digital platforms for communications and team-working than their counterparts in years one and two. This would appear to reflect that the core activity is dedicated to developing group working skills described within module mapping exercise. Elsewhere, there are also gains at each stage in the sub-domain of learning skills. However, the increase in capacity that might be inferred here was not present within the mapping exercise. Given that very few modules provided an immersive learning experience, these results would suggest that students are not developing their learning skills as a result of the virtual learning environments associated with the program.

Expectations and Experiences of the Digital Curriculum

Finally, we sought to explore how students experienced the digital curriculum, and their digital histories more generally, by conducting two focus groups with year one and year two students and a series of interviews with year three students. The interview schedule focused on five discrete areas of interest: awareness of digital literacy; importance of digital literacy; educational experiences of digital literacy before entering the university; experiences of digital literacy on entering the university, as well as their progression through it; barriers to digital participation; and expectations of the future with respect to digital literacy. Thematic analysis of the data (see Braun & Clarke, 2006) revealed three key themes in the

experiences and expectations of the students. These were the diversity in their respective digital histories, their experience of digital transitions into higher education, and their growing confidence in digital capability. Each is dealt with in turn.

Firstly, the analysis of the data revealed that there was much diversity in their previous experience of "the digital" in respect to education, as well as their use of digital technology in everyday contexts. Indeed, unlike early generational characterizations that homogenized students as "digital natives," interviewees in this sample not only had diverse orientations towards technology generally, but also, they tended to make tacit distinctions between personal and educational engagements with digital platforms. So while there was a fairly constant, but individually very diverse, background use of digital technology in their personal lives, their specific digital engagements in the context of education were much more sporadic. Interviewees demonstrated a marked tendency to implicitly construct a disassociation between their personal uses of digital technology and more educational ones, with one being largely separate from the other (Hinrichsen & Coombs, 2014). For example, even though one interviewee was clearly well-versed with many social media platforms and software packages, the person went on to suggest, "I just went to school, used books, came home. I never really used digital literacy." This has not gone unnoticed elsewhere, and there is an emerging body of work that has recognized that the transfer of digital skill sets from personal contexts to educational ones, and vice versa, is problematic and cannot be assured, particularly in the arenas of information management and identity awareness (Judd & Kennedy, 2011; Littlejohn, Beetham, & McGill, 2012).

There was, however, variation in their engagement with digital technology as they moved through the education system more generally. So, while there appeared to be some interesting uses of technology in primary education that did promote digital literacy—there were fond memories of "Easy Keyzy", "Microsoft Magic," and "Frog"— direct educational experiences of digital technology tended to dissipate during secondary school. By the time our interviewees reached further education, engagement with digital literacy was, for many, non-existent unless they specifically sought it out. So, whereas one interviewee remembered that he or she had just "three computers in the sixth form block," another recalled the following:

> 'I did A-level ICT anyway, so obviously I did it then. But apart from that, for all my other A-level subjects I didn't use it...God knows why I went on to do [ICT] at A level because it was the dullest subject in the world.'

However, in spite of the formal reliance on "A level textbooks," some students did use their personal experiences of technology to augment their learning, particularly as a source of clarification. YouTube, for example, was highlighted as a particularly useful tool during revision: "When I was doing my A-levels YouTube was a massive part of my revision - like going on YouTube and looking on there."

This was all in contrast to their point of arrival at TUoS where they described their transition into higher education as "a big step up" to the point of "information overload," which was very "daunting." Digital literacy was a central point of delivery in terms of information (email), course content (the VLE), and activities associated with being an undergraduate student (accessing resources). One student suggested, "It felt like it was a step up, it was definitely a step up. Going on the reading list and finding a book, I guess it's more the atmosphere of using it."
Another offered the following:

> It was a bit daunting going on to [the library website] and [the VLE] for the first time. I remember going on and seeing that I had 50 notifications and messages in the top corner, and I remember thinking, "I'm going to fail my degree because I've not read these messages!

The overarching feeling was that it was "too much, too soon" and that things "could've been a lot simpler." Some second years reflected that, due to the information overload, key messages were not getting through:

> There's so many things out there that can be used, but I feel like they're not that well-advertised to us. Like, I have had them, I've heard them mentioned and stuff - and you can go on the university website and it says a list of all the different databases and digital tools you can use - but I wouldn't say I was fully aware of them and I certainly don't use them all…

There was also some concern, particularly in the level three interviews, that the skills they had learned would not directly benefit them going forward into the workplace:

> But there's things like SPSS that I've used at the time, and I've never used again. I didn't understand it at the time, and I'm not sure I'll ever get my head around it...[S]ome things are very university specific, like [the library system], and I'll probably never use it again....I think if I did a masters I'd be well equipped. I'd say I am quite computer savvy, but that's from my own experience more than what the department has provided me. Most of what I've done has been self-taught.

A key method of negotiating transition was to simply draw on their previous experiences and

experiment with the technology to see what worked: "'I think for the majority of us, we just crack on and get on with it. We know the basics and stuff so when it comes to Uni you just click around and see what works."

Many interviewees also recognized that as they progressed through their degree, their confidence did appear to grow. These second years, for example, suggested: "'I don't know [what more could be done], because I can't imagine I'd need much more. I've been introduced to many different adaptations over the past year. I think I've got a pretty advanced level of digital literacy." Another noted, 'Yeah, I can't imagine the department putting in anything different in third year that we're going to be like 'Oh God, I've not had to deal with this before.'"

Indeed, some of the more reflective students commented on the changes that they had experienced across the program, and they appeared to recognize the need to adapt to the changing demands of technological development: "Digital literacy is something that develops and changes over time, it's not just something that you have or don't have….We've got to adapt, like digital chameleons." So, while the indirect benefits of engaging with digital platforms could be better narrated within the program to better explain the purpose of developing the skills and capacities associated with digital literacy, the results of the qualitative findings generally support the upward trajectories outlined in the quantitative results.

Discussion

This paper builds on the work of JISC (2014), Killen and Chatterton (2015) and, Simpson and Clark (2018), to explore how a model of student partnership can be used to assess the "digital curriculum" within undergraduate programs. In doing so, it provides a means to map and explore aspects of the digital curriculum, measure digital capacity, and explore digital histories and experiences. In respect to the findings specifically, we are able to make five key points. Firstly, the mapping exercise reveals that there was a digital curriculum within SCS programs. However, and secondly, this was not always well articulated at the modular or program level. Thirdly, this can have the consequence of students feeling overwhelmed at the beginning of their program where the learning curve is at its steepest. Fourthly, in this particular case there is a general increase in capacity across all areas over the course of the program. Finally, while this trajectory does flatten out towards the end of the degree, it does appear that these particular students are moving out of higher education with some increased "digital confidence."

However, beyond the confines of this case study, it is possible to make a number of broader points about the nature of "the digital curriculum" and the importance of student-staff partnerships in relation to it. In the first instance, while statistical generalizations cannot be made from the results presented above, the results remain instructive. The technology that is utilized by many higher education institutions both within the UK and elsewhere means that the general experiences of undergraduates are likely to be similar across institutions. The emphasis placed on email communication and social media, the breadth – but perhaps not always depth – of VLEs, the expansion of library provision and associated services, the growth of online administrative requirements, and the gradual development and diversification of assessment and feedback all necessarily require increasing levels of digital competence. Alongside the general emphasis on independent learning, many of the skills and capacities necessary to navigate this terrain will often be tacitly assumed rather than explicitly taught. For those entering higher education, this will often be in direct contrast to their experiences of further education, which is likely to be typified by classroom-led, and textbook-based, approaches that are scaffolded to exhaustion. Similarly, echoing the point of Jones, Johnson, & Gruszczynska (2012) that "students will only acquire digital maturity if we take the time to consider what they need from us," the modular nature of disciplinary degree programs means that many are unlikely to specifically draw out, connect, and narrate those implicit and explicit elements of digital literacy that exist across the entire bandwidth of a particular degree. All of this plays out against the increasingly diverse array of digital and technological histories and practices that students possess and utilize in their everyday lives.

In part, this is why student-staff partnerships are important in developing both the means to map, understand, and develop "the digital curriculum." While staff have the technical means to develop modules and programs, students themselves possess the working knowledge of what skills and capacities are necessary to navigate those courses. Not only can they identify points of transition and resistance in terms of their progression, they can also help formulate the questions that are often necessary to further investigate and develop those emergent points of interest. In doing so, partnership working in the arena of the digital curriculum also has the ability to go beyond homogenized stereotypes of the "digital native." As previously highlighted, generational attitudes and dispositions toward digital technology – and their position within learning and teaching in higher education specifically – are marked by diversity rather than homogeneity. The divergent nature of partnership working has the potential to recognize, understand, and respond to this variety of experiences.   This is especially important given the continuing evolution of

applications, software, and platforms that are associated with digital technology. Moreover, in a rapidly developing technological world where enthusiasm can often overtake utility, student-staff partnerships can also reveal where innovations might not be as helpful as initially might be imagined.

But beyond such practical and perhaps instrumental utility, partnership work can also enable more inclusive relationships between students and staff, especially where these relations are characterized by, and through, an open dialogue. In turn, this can help build an environment whereby students feel more able to take ownership of their learning so they can shape their university experience towards their own needs and interests. This is not to say that partnership working is entirely unproblematic (see Simpson & Clark, 2018). However, to return to Healey, Flint, & Harrington (2014), partnership work is concerned with the process of working, just as much as it is the outcome of it. It also offers ways of thinking about "the digital curriculum" that resonates strongly with the collaborative ideals that continue to inform much digital enterprise, and in this particular case, it enabled us to introduce, and demonstrate the value of collaboration, interaction, and partnership within the context of both the department and the wider university.

References

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds.), *Self-efficacy beliefs of adolescents* (pp. 307-337). Greenwich, CT: Information Age Publishing.

Belshaw, D. A. J. (2012). *What is 'digital literacy'? A pragmatic investigation*. (Doctoral dissertation). Durham University, Durham, UK.

Bennett, S., Maton, K., & Kervin, L. (2008). The 'digital natives' debate: A critical review of the evidence. *British Journal of Educational Technology*, *39*, 775–786. doi:10.1111/j.1467-8535.2007.00793.x

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101. doi:10.1191/1478088706qp063oa

Buckingham, D. (2013). Making sense of the 'digital generation': Growing up with digital media. *Self & Society*, *40*, 7-15.

Calvani, A., Cartelli, A, Fini, A, & Ranieri, M. (2008). Models and instruments for assessing digital competence at school. *Journal of e-Learning and Knowledge Society, 4*(3), 183-193.

CLEX. (2009). *Higher education in a Web 2.0 world: Report of an independent committee of inquiry into the impact on higher education of students' widespread use of Web 2.0 technologies*. Bristol, UK: CLEX. Retrieved from http://hdl.voced.edu.au/10707/176742

DCMS. (Department for Digital, Culture, Media & Sport). (2016). *Digital sector economic estimates January 2016*. London, UK: HMSO.

DoE. (Department of Education). (2013). *National curriculum in England: Computing programmes of study*. London, UK: HMSO.

Evangelinous, G., Holley, D., & Kerrigan, M. (2016). *Implementing a model and processes for mapping digital literacy in the curriculum*. Proceedings of the European Distance and E-Learning Network 2016 Annual Conference: Re-Imagining Learning Environments, Budapest, Hungary.

Flavin, M. A. (2017). *Disruptive technology enhanced learning: The use and misuse of digital technologies in higher education*. Basingstoke, UK: Palgrave Macmillan.

Flavin, M. A., & Quintero, V. (2018). UK higher education institutions' technology-enhanced learning strategies from the perspective of disruptive innovation. *Research in Learning Technology*, *26*, 1987. doi:10.25304/rlt.v26.1987

Flint, A. (2015). Students and staff as partners in innovation and change. *Journal of Educational Innovation, Partnership and Change*, *1*, 1. Retrieved from https://journals.gre.ac.uk/index.php/studentchangeagents/article/view/218

Friesen, N., Gourlay, L., & Oliver, M. (2014). Editorial: Scholarship and literacies in a digital age. *Research in Learning Technology*, *21*, 23834.

Gilster, P. (1997). *Digital literacy*. New York, NY: John Wiley.

Goodfellow, R., & Lea M. R. (2013). *Literacy in the digital university*. London, UK: Routledge.

Halfpenny, S., & Brown, D. (2016, March). *Working collaboratively to map and develop digital literacy provision*. Paper presented at LILAC (Librarians' Information Literacy Annual Conference), Liverpool, UK.

Healey, M., Flint, A., & Harrington, K. (2014). *Engagement through partnership: Students as partners in learning and teaching in higher education*. York, UK: Higher Education Academy.

Healey, M., Flint, A., & Harrington, K. (2014). Students as partners: Reflections on a conceptual model. *Teaching, Learning, Inquiry*, *4*, 2. doi:10.20343/10.20343/teachlearninqu.4.2.3

HEA & NUS. (2011). *Student engagement toolkit*. London, UK: Higher Education Academy and National Union of Students. Retrieved from https://www.nusconnect.org.uk/the-student-engagement-partnership-tsep/student-engagement-toolkit

Henderson, M., Selwyn, N., & Aston, R. (2015). What works and why? Student perceptions of 'useful'

digital technology in university teaching and learning. *Studies in Higher Education*, *42*, 1567-1579. doi:10.1080/03075079.2015.1007946

HoC/STC (House of Commons Science & Technology Committee). (2016) *Digital skills crisis: Second report of session 2016–17*. London, UK: HMSO. Retrieved from https://www.publications.parliament.uk/pa/cm201617/cmselect/cmsctech/270/270.pdf

HoL (House of Lords) (2015). *Make or break – the UK's digital future*. Retrieved from https://publications.parliament.uk/pa/ld201415/ldselect/lddigital/111/111.pdf

Hinrichsen, J., & Coombs, A. (2014). The five resources of critical digital literacy: a framework for curriculum integration. *Research in Learning Technology*, *21*, 21334. doi:10.3402/rlt.v21.21334

JISC (Joint Information Systems Committee). (2014). *Developing digital literacies*. London, UK: JISC. Retrieved from https://www.jisc.ac.uk/full-guide/developing-digital-literacies

Jones, H., Johnson, P., & Gruszczynska, A. (2012). Digital literacy: Digital maturity or digital bravery? *Enhancing Learning in the Social Sciences*, *4*, 1-3. https://doi.org/10.11120/elss.2012.04020001

Jones, C., & Binhui, S. (2011). *The net generation and digital natives: Implications for higher education*. York, UK: Higher Education Academy.

Judd, T., & Kennedy, G. (2011). Measurement and evidence of computer-based task switching and multitasking by 'Net Generation' students. *Computers & Education, 56*, 625-631. doi:10.1016/j.compedu.2010.10.004

Killen, C., & Chatterton, P. (2015). *Developing successful student-staff partnerships*. Retrieved from https://www.jisc.ac.uk/guides/developing-successful-student-staff-partnerships

Killen, C., Beetham, H., & Knight, S. (2017). *Developing organisational approaches to digital capability*. Retrieved from https://www.jisc.ac.uk/guides/developing-organisational-approaches-to-digital-capability

Lankshear, C., & Knobel, M. (2008). *Digital literacies: Concepts, policies, and practices*. Oxford, UK: Peter Lang.

Lea, M. R., & Jones, S. (2011). Digital literacies in higher education: exploring textual and technological practice. *Studies in Higher Education*, *36*, 377-393. doi:10.1080/03075071003664021

Littlejohn, A., Beetham, H., & McGill, L. (2012). Learning at the digital frontier: a review of digital literacies in theory and practice. *Journal of Computer Assisted Learning Online, 28*, 547-556. doi:10.1111/j.1365-2729.2011.00474.x

McKay, R., & Baily, J. (2017, June). *Inside knowledge*. Poster presented at 'RAISE: International Colloquium Partnership', Birmingham City University, UK.

Newman, T., & Beetham, H. (2017). *Student digital experience tracker 2017: The voice of 22,000 UK learners*. Retrieved from http://repository.jisc.ac.uk/6662/1/Jiscdigitalstudenttracker2017.pdf

Ng, W. (2012). Can we teach digital natives digital literacy? *Computers & Education*, *59*, 1065-1078. doi:10.1016/j.compedu.2012.04.016

NUS (National Union of Students). (2012). *A manifesto for partnership*. NUS: London.

Sefton-Green, J., Nixon, H., & Erstad, O. (2009). Reviewing approaches and perspectives on 'digital literacy'. *Pedagogies: An International Journal*, *4*, 107-125. doi:10.1080/15544800902741556

Sharpe, R., & Beetham, H. (2010). Understanding students' uses of technology for learning: Towards creative appropriation. In R. Sharpe, H. Beetham, & S. De Freitas (Eds.), *Rethinking learning for a digital age: How learners are shaping their own experiences* (pp. 85-99). London, UK: Routledge.

Simpson, C., & Clark, T. (2018). Reflections on the development of a model of partnership designed to enhance the 'digital curriculum' of Sociological Studies programmes. *Student Engagement in Higher Education Journal*, *2*(1), 61-69.

_____

TOM CLARK is a Lecturer in Research Methods in the Department of Sociological Studies at the University of Sheffield. He is interested in all aspects of method and methodology, particularly with respect to learning and teaching. His other interests have variously focussed on the sociology of evil, student experiences of higher education, and football fandom.

CLARRISA SIMPSON, B.A. (hons) studied as an undergraduate student in the Department of Sociological Studies, University of Sheffield. She is now a full time Geography teacher and is studying toward a Post Graduate Diploma in Education.

Co-Teaching in Higher Education: Mentoring as Faculty Development

Leslie Ann Cordie
Auburn University

Xi Lin
East Carolina University

Tabitha Brecke
Auburn University

Michael C. Wooten
Auburn University

"In learning you will teach, and in teaching you will learn." ~
Phil Collins – Musician/Composer

This paper develops the concept of mentoring through co-teaching as a framework for faculty development in higher education. Mentoring relationships provide an excellent method of improving growth and development of workers within virtually every profession. As a structure for professional development, a mentoring model centered on the concept of co-teaching can maximize instructional competency and scholarship for both faculty and graduate students in the higher education setting. Implementation of successful co-teaching strategies into the higher education mentoring environment requires consideration of several factors, including an understanding of the model, creation of a joint teaching plan, and ongoing development of a collaborative relationship. Creating learning through co-teaching experiences may enhance mentoring relationships, produce better faculty, enrich experiences for students, and empower all to become more effective and self-directed learners in the 21st century.

Mentoring as Teaching Scholarship

There are many challenges in the world of the academia. One of the most critical issues for higher education today is the need to produce 21st century learners with critical thinking and problem-solving skills (OECD, 2018). In order to meet this challenge, faculty have recognized the need to move from a traditional teacher-directed approach to a more learner-centered approach, thus shifting toward an andragogical framework for learning (Knowles, 1980). This change in paradigm has a direct implication on the Scholarship of Teaching and Learning (SoTL), as at the core of the SoTL paradigm is the concept of shared knowledge and mutual learning (Cassard & Sloboda, 2014; Potter & Kustra, 2011). Indeed, sharing of acquired knowledge is one hallmark of a true scholar. We, as have others (Kreber, 2007; Trask, Marotz-Baden, Settles, Gentry, & Berke, 2009), argue that teaching scholarship includes mentoring and falls within the SoTL domain. As such, it should allow for the development of a collaborative, mutually respectful relationship based on andragogical principles (Knowles, 1980; Merriam & Caffarella, 1991). Therefore, while mentoring in academia has been traditionally viewed as a method to increase the scholarship of mentees, we view the mentoring process itself as being teaching scholarship. Mentoring is critical to authentic, evidenced-based methods of professionalizing the teaching practice, as good teachers require nurture and guidance on best practices.

Mentoring as a form of faculty development can function as an invaluable tool for increasing instructional skills which, in turn, improve the higher education learning environment (Friend, Cook, Hurley-Chamberlain, & Shamberger, 2010). In virtually every profession, mentoring relationships are considered excellent routes for growth and development of workers within that profession (Ramaswami & Dreher, 2011). In higher education, mentoring can be employed as a valuable approach to aid the development of faculty (Boyle & Boice, 1998a; Hénard & Roseveare, 2012; Johnson et al., 2016). Yet, for its importance, there is no standardized mentoring model in academia (Nick et al., 2012; Ortiz-Walters & Gilson, 2005).

Mentoring in academia takes a variety of forms, partially because of the independent nature of academicians, but also as a response to the individual differences among participants. Gender, race, ethnicity, culture, disability, and generation are all elements that must be factored into a successful mentoring strategy (Crisp & Cruz, 2009; Dhed & Mollica, 2013). Today, the diverse, talented, and well-qualified group of those seeking faculty positions in higher education includes increasing numbers of candidates from varied backgrounds and abilities. Diversity in all forms adds positive value to the intellectual and cultural array on a college or university campus. Moreover, a diverse faculty provides valuable role models for college students while also enhancing learning outcomes (Badiali & Titus, 2010; Gillespie & Israetel, 2008). Whatever their background, history has shown that new faculty and graduate students require mentoring in order to become successful in academia (Boyle & Boice, 1998b; Johnson, 2015; Zellers, Howard, & Barcic, 2008). We suggest that co-teaching is a valuable way of mentoring the diverse groups in academia, thus ensuring success in the higher education environment for faculty, graduate students, and 21st century learners from all backgrounds.

This paper will focus on the concept of mentoring and the practical instructional strategies to increase the development of faculty and graduate students of diverse

backgrounds within higher education. Our intent is to present the basics of a mentoring model based on the concept of co-teaching, and to use co-teaching as a platform for an instructional protocol that maximizes the success of faculty, graduate students, and instructors in academia. We start from the premise that mentoring may be the most important variable related to academic and career success for graduate students (Boyle & Boice, 1998a), early career development of faculty (Duda, 2004; Morin & Ashton, 2004; Malaney, 1988), and retention of diverse faculty in higher education (Beretz, 2003; Hénard & Roseveare, 2012; Piercy et al., 2005). Mentoring through co-teaching may create a better learning environment for both faculty and students by supporting a strong, diverse faculty with a common set of instructional practices. In building our model, we start by providing our definition of mentoring, then develop our concept of co-teaching, and finally describe the key components for a successful Co-Teaching as Mentoring (CTM) strategy and best practices for mentoring in higher education.

Higher Education Mentoring

Since it has been utilized in a variety of workspaces for multiple centuries, many definitions for mentoring can be found in the literature. Broadly defined, mentoring includes techniques as contrasting as the practices of apprenticeship as used in various permutations throughout human history that involve some form of tutoring (D'Abate, Eddy, & Tannebaum, 2003). A definition that is useful for higher educational mentoring involves the process of one individual supporting, teaching, leading, and serving as the role model for another individual (Buell, 2004). This definition describes well the role of the traditional mentor, who serves as an experienced advisor in the teaching setting in higher education (Brown, 1999; Johnson, 2015). We propose expansion of this mentoring concept to incorporate joint participation of both the mentor/mentee by using reciprocal communication and collaboration within a co-teaching environment, in essence, CTM. We will argue that the CTM approach represents a successful strategy for mentoring academic professionals in the higher education learning environment (Johnson, 2015; Orlander, Gupta, Finke, Manning, & Hershmann, 2000).

While a long-held practice in many K-12 institutions, awareness of mentoring as co-teaching needs to be promoted in higher education for the development of new faculty, those in graduate teaching programs, or doctoral students who plan on going into academia (Boyle & Boice, 1998a; Harris & Harvey, 2000; Henderson, Beach, & Famiano, 2007; Johnson, 2015; Lester & Evan, 2009). As doctoral programs remain the premier training ground for the world's future scientists

and scholars, higher education needs to ensure mentoring opportunities for graduate students so they can develop into successful, productive faculty members (Clark, Harden, & Johnson, 2000; Johnson, 2002).

In addition to aiding new tenure-track faculty and doctoral students, mentorship programs are also essential for success of adjunct professors, instructors, and other graduate students in the higher education environment (Walters & Misra, 2013). Sparkman, Maulding, and Roberts (2012) found that success in college, as defined by student retention and academic performance, may be related to other variables or combinations of variables connected to mentoring, including development of emotional intelligence, and the variety of interactions with faculty, including cooperative learning experiences. Given this correlation, we propose that a well-designed CTM model can provide many of the key components for a successful mentoring program in higher education, for faculty and graduate students alike, by developing instructional best practices within a collaborative relationship.

Co-Teaching in Higher Education

The higher education environment includes a need to focus on many different issues, such as diversity, inclusion, problem-solving, and other issues (Kuh, 2007). Co-teaching and collaboration can assist faculty in the higher education environment to manage these diverse issues. In higher education and professional schools, co-teaching often equates to having multiple instructors present material independently as a series of related lectures (Bacharach, Heck, & Dahlberg, 2011). We are interested in an alternative model, whereby instructors interact more directly with one another, are often present in the same class sessions, and prepare for the entire curricula as a unit. This forms the basis of the proposed CTM model in this paper.

Co-Teaching as Mentoring (CTM)

The specific form of mentoring in higher education highlighted in this concept paper is co-teaching with either a graduate student or an instructional colleague. Both formal and informal methods of mentoring are included in the CTM model. Bacharach and colleagues (2011) define co-teaching as two instructors working together directly for student teaching; sharing responsibility for the planning, organization, delivery, and assessment of instruction; and sharing the physical space in which learning occurs. The senior (i.e., in terms of experience, not age) instructor or teacher serves as the formal mentor, with the colleague (i.e., graduate student or junior faculty member)

being the mentored protégé. The actual roles and responsibilities in CTM for the mentor / mentee are discussed later in this paper.

Model of Co-Teaching as Mentoring (CTM)

The purpose for co-teaching in higher education is for new and future faculty to develop in all areas of the teaching discipline and become highly skilled facilitators of learning. Sharing of the curriculum, classroom, and students during co-teaching allows for both the mentor and mentee to benefit from the experience. CTM is an excellent model for mentoring in higher education as it allows for negotiation and collaboration of teaching roles, takes advantage of the expertise that each person brings to the partnership / teaching experience, and helps to set aside assumptions about traditional roles, thereby forging new ways of thinking, teaching, and learning (Brookfield, 2017; Harris & Harvey, 2000). The mentee, be it graduate student or new faculty member, is allowed to be fully engaged in teaching, while experiencing active mentoring.

Different from traditional student teaching models where the mentor separates from classroom instruction as time progresses, CTM retains the expertise and added value of the faculty mentor as an active collaborator throughout the entire teaching and learning experience (Mastriopieri et al., 2005). CTM as co-teaching allows for professional growth during the mentoring process based on reflective dialogue that occurs before, during, and after the experience (Brookfield, 2017; Lester & Evans, 2009). Both self-reflection and collaborative reflection are essential components in CTM, and they develop based on the teaching and mentoring experiences that occur during the co-teaching process.

Co-teaching can be synchronous or asynchronous. The asynchronous model is common in professional schools and generally involves individuals providing a discrete lecture set during a course, often completely independent of other instructors. In contrast, the CTM model focuses on the synchronous approach. Synchronous co-teaching occurs when both instructors present material together (Beninghof, 2012; Cook & Friend, 1995). Teachers participate equally by creating discussion and building on concepts the other teacher has presented in the same lesson, usually in the same learning space.

Synchronous co-teaching requires both cooperation and a commitment of time from each instructor (Beninghof, 2012). Time is needed for role development, course planning, and coordination of teaching styles. It may also demand a higher level of trust to allow one teacher to empower another teacher in his/her classroom and to share course materials and responsibilities. When synchronous co-teaching works, innovative approaches and spontaneity are usually the

result (Gillespie & Israetel, 2008). This form of co-teaching is the essence of CTM in that it involves mentoring through development and nurturing of the mentor/mentee relationship. Results from this form of mentoring can lead to highly collaborative and authentic outcomes, with the added element that it provides opportunities for both the mentor and mentee in terms of shared experiences (Beard & Wilson, 2002; Kreber, 2007). The results of CTM are authentic and form the basis for future successful experiences and scholarship of teaching as individuals advance in academia (Kreber, 2007).

Strategies for Success in Mentoring through Co-Teaching

Over the past decade, versions of co-teaching strategies have been successfully adapted for practicing faculty use when mentoring pre-service faculty during student teaching (Bacharach et al., 2011). Following these examples, we argue that co-teaching strategies can be adapted to provide a mentoring framework in higher education. The approach allows all participants to be actively engaged in the shared work of planning, organizing, and delivering, as well as assessing instruction and outcomes. Implementation of successful co-teaching strategies in the higher education mentoring environment requires consideration of several factors, including an understanding of the learner (both mentor / mentee), regular planning, and ongoing development of a collaborative relationship.

Adult Learning Principles

Research suggests that mentors and mentees in a CTM experience should be aware of their differences and their values in order to perform effectively (Conderman, Bresnahan, & Pedersen, 2009; Lester & Evans, 2009). This means that the mentor/mentee must develop an appreciation for the other's preferences, attributes, and stages of development (Crow & Smith, 2005; Di Prospero & Bhimji-Hewitt, 2011). The psychosocial development of both the mentor and mentee may include generational attitudes toward work and other characteristics that are important for both to understand (Merriam & Caffarella, 1991; Mastropieri et al., 2005; Nelsey & Brownie, 2012). For instance, a faculty member born in the 1950's (Baby Boomer generation) may initially have difficulty mentoring a new faculty member born in the 1980's (Millennial) due to their different developmental experiences and values (D'Abate et al., 2003; Johnson, 2002; Nelsey & Brownie, 2012). However, the existence of differing life experiences among mentors/mentees may be a highly valuable reciprocal learning opportunity when approached properly by both parties.

Thus, a key consideration of the CTM model is that the both the mentor and mentee are adult learners. Both of the learners have significant past experiences that can serve as resources for learning, tend to be self-directed, and are generally intrinsically motivated (Knowles, 1980). Therefore, in developing a CTM mentoring relationship, both parties need to have an understanding of the interplay between psychosocial experiences and thinking of adult learners (Merriam & Caffarella, 1991). Building awareness of how adults learn also develops insight into the different types of learning strategies that may be used by the mentor and mentee in the classroom, as both will have individual preferences and values in terms of learning. To ensure a positive outcome from the CTM experience, the mentor and mentee need to use this knowledge to create a balanced use of teaching approaches (Merriam & Caffarella, 1991).

One of the most difficult issues for the mentor/adult learner (vs. the mentee/adult learner) in the academic environment is to understand how to share creative instructional products yet retain academic freedom and a position of expert learner (Gappa & Austin, 2010). In developing a lesson or any curricula, the mentor and mentee need to understand the process of compromise. Often, the mentor, who rightfully has a sense of ownership and pride about their scholarly products, may have developed the original course and instructional materials that will be used in the CTM experience individually. This may make it difficult for them to take input from the mentee during the curriculum development and co-teaching process. It will be especially important for the mentor to provide an atmosphere that encourages collaboration when actually teaching the course with a mentee. Mentors need to have the capability to plan, observe, and facilitate discussions effectively with their mentees regarding curriculum and other issues (Duda, 2004; Harris & Harvey, 2000). Collaboration and communication strategies are discussed in the following sections.

Planning for CTM

The first step in CTM is creation of a planning process which begins well in advance of when instruction occurs. The definition of co-teaching and the roles in a co-teaching model need to be detailed and understood by both the mentor and mentee. During the planning process, the mentor and mentee team also need to discuss the philosophy of learning and the expectations for the roles of instructor and student. It is crucial that each person understands the viewpoint of the other and that they articulate a common view for the course objectives in order to avoid conflict and confusion for students (Bacharach et al., 2011; Johnson, 2015). For instance, it would be important if a mentor was a Traditionalist

(teacher as expert) and the mentee was a Radicalist (teacher as provocateur) to discuss their philosophies on the learning environment (Zinn, 2004). Describing and negotiating their differences in teaching and learning philosophies would be a valuable first session.

Thus, the first goal of an effective CTM relationship is to develop parity during the initial planning process, no matter what the philosophical differences. Parity (i.e., equality) ensures that the mentor's and mentee's instructional contributions are equally valued and implies shared power and decision making for the instructional process (Conderman et al., 2009; Lester & Evans, 2009). In effect, co-teachers collaborate to divide responsibilities and share accountability for student learning. This is different from more traditional models of instruction or mentoring in higher education, in which the mentor directs the experience with minimal input from the mentee (Johnson, 2015).

Parity can be a difficult concept to implement, but it lays the foundation for the CTM relationship. According to Bacharach et al. (2011), the following factors are most important to parity in co-teaching:

- Equivalent instructional time;
- Equal classroom management and discipline responsibilities;
- Use of language like "we," "us," or "our" to the students when describing the course and philosophies;
- Similar work/contact with ALL students;
- Use of both names on syllabus and other course materials.

These parity factors may be necessary from the onset of CTM and continue to develop over time through the mentoring experience. For instance, the use of both names on the syllabus and other course materials may be essential at the beginning to establish the significance of the relationship. Actual equivalent instructional time may happen only over time as the relationship matures and trust is developed during the mentoring and planning process.

Mutual respect and equivalent goals are also needed for building a successful foundation in the co-teaching mentoring experience (Cook & Friend, 1995). In the literature, the need for co-teachers to develop a strong professional partnership is highlighted. Kohler-Evans (2006) described co-teaching as being a strong collaboration similar to that of a marriage. The higher education literature discusses CTM experiences more as a business partnership in which the focus is on the mentor/mentee relationship and student-learning outcomes, not necessarily on the specific relationship attributes of the co-teachers (Crow & Smith, 2005; Lester & Evans, 2009). Both practices are important in

terms of understanding viewpoints, yet maintaining a professional relationship. In addition, most partnerships are time-limited and /or may not endure due to "irreconcilable differences," changes in agreements, or dissolution of the relationship.

Roles and Responsibilities in CTM

Although academics are usually expected to know how to collaborate and communicate in higher education, these skills are seldom identified and / or taught in higher education (Johnson, 2002; Johnson, 2015; Mastropieri et al., 2005). For instance, graduate students spend a significant amount of time in isolation while conducting research and writing dissertations. As these graduate students become higher education faculty members, they are typically encouraged to develop a research agenda that highlights their individual contributions. As such, collaborative efforts are rarely rewarded in the tenure-track process (Kezar, 2006). Therefore, faculty are not inclined to work with others and do not seek out experience or the skills to work collaboratively.

Each member of a CTM relationship has a particular role that provides the foundation for a successful teaching experience. Because mentors and mentees work together during a CTM teaching experience, it is essential that each individual fully understands their responsibilities and expectations. This knowledge will help ensure a constructive experience, not only for the students in the classroom in terms of the teaching experience, but also for the mentor and mentee's overall working experience making (Conderman et al., 2009; Lester & Evans, 2009). Again, multiple planning sessions should be held throughout the entire co-teaching experience to ensure dialogue and feedback about the process. It is helpful to formalize the agenda of such meetings to allow adequate opportunity and time to discuss goals and to set mutually agreeable expectations (Conderman et al., 2009; Lester & Evans, 2009). Regularly scheduled meetings with an agenda allow for areas of disagreement to be shared, discussed, and resolved through dialogue.

At the initial CTM meeting the mentor and mentee should have discussed overall mentoring goals and objectives for the CTM experience. Along with the planning process, the 'rules of engagement' and expectations for the experience should be discussed and detailed (Conderman et al., 2009; Lester & Evans, 2009). This planning process takes the form of a learning contract and establishes guidelines for the rest of the sessions (Zinn, 2004). As time evolves, future planning sessions may be structured more equally between the mentor and mentee in terms of responsibilities. As the semester progresses and mentees gain experience, they should be expected to take more responsibility for planning, as the relationship has gained trust and respect.

Communication strategies. As noted earlier, clear communication is crucial for establishing and maintaining parity, and thus it is key to the formation of an effective CTM relationship. In general, co-teaching involves discussion on a wide array of communication topics, including classroom rules, instructional procedures, handling of problems in the classroom, and grading (Crow & Smith, 2005). As the CTM relationship develops and deeper communication arises, more difficult discussions and differences in philosophies arise. For instance, the process of grading may lead to disagreements as the course progresses (Johnson, 2002). It is important for mentors to anticipate and recognize areas where issues may potentially occur, prepare a strategy to address the issues ahead of time, and plan for discussions that will lead to appropriate and agreeable outcomes (Johnson, 2015). This preparation by the mentor helps mentees develop insight into understanding colleague's expectations, ways to handle conflict issues in the workplace, and proper organizational and management skills in higher education (Johnson, 2002; Johnson, 2015).

Cooperation strategies. CTM requires effective communication skills for cooperation and collaboration. As the leader in the mentoring process, it is extremely important for the mentor to consider and evaluate their leadership role in the collaboration process (Buell, 2004; Johnson, 2015). The mentor must understand that there is a distinct difference between simple cooperation and collaboration. Cooperation relates to the concept of a shared agreement to proceed toward a common outcome, while collaboration extends this idea to include a fully synergistic relationship among the participants (Buell, 2004). One way to understand the distinction is for mentors and mentees to take a self-assessment and to understand their respective strengths and weaknesses in the instructional environment (Sambunjak, Straus, & Marusic, 2010). This assessment may also help in understanding differences between teaching and learning philosophies. Once the mentor and mentee find out their respective styles, along with their strengths and weaknesses, they can better understand themselves and then how to work more effectively with differing styles (Merriam & Caffarella, 1991).

Enhancement of compromise and negotiation skills is another important element within the CTM model. The mentor and mentee need to effectively communicate any questions or issues about the lesson and decide on instructional strategies together to meet the needs of the students. In addition, evaluation of co-teaching sessions should be completed immediately after the lesson or during the next pre-planning session. This allows for relevant discussion on the successes and failures during the class, reflection on the learning

experiences, and examination of any specific areas of concern in order to improve the next session (Beard & Wilson, 2002). Self-assessment and improvement are among the most valuable parts of the CTM process, as they provide reflective learning for both the mentor and mentee (Brookfield, 2017).

Interestingly, the root of many communication and collaboration problems associated with academic settings are generational differences (Mastropieri et al., 2005). Often mentors and mentees are from different generations. These generational differences can have a significant impact on communication and expectations in the mentoring relationship. Mentoring research characterized mentors as typically 8 to 15 years older than their mentees, with this gap larger in higher education (Stewart, 2006). Diverse generations portray distinct worldviews and attitudes in the workplace. Researchers believe that behaviors are driven by individual values and that these diverse values can collide when members of different generations work and learn together (Nelsey & Brownie, 2012). As with the adult learner strategies discussed earlier, it is important for both the mentor and mentee to be aware of individual differences and to develop an appreciation of the strengths and differences in the relationship. Using the CTM process will help in navigating the areas of concern.

Mentoring and Co-Teaching with Technology

One area of importance in CTM, and in faculty development in general, is the growing use of instructional technologies in teaching. The idea of teaching and learning with technology may have various meanings to both the mentor and mentee (Zhu & Kaplan, 2013). Educational technology, digital learning, technology-enhanced learning, instructional technology, and other phrases are often used interchangeably, especially in higher education settings (Kirkwood & Price, 2014). Developing online modules in a learning management system, taking classroom attendance with clickers, or using video are just some examples of how technology can be used to facilitate teaching and learning in higher education. Yet, technology is only a tool for delivering instruction within the teaching and learning environment; the facilitator or instructor is key to choosing how to best design and develop the instruction and utilize the technologies available for successful student learning (Kirkwood & Price, 2014).

Educational technology can be used more appropriately and effectively if it is carefully integrated into the instructional process. Using CTM allows for both mentors and mentees to take into account the various factors involved in teaching and learning, including ways to best utilize technology, along with delivery methods

(Kukulska-Hulme, 2012; Morra & Reynolds, 2010). Effective integration of technology means devoting time during the mentoring process to curriculum development as well as integrating universal design principles to facilitate student learning throughout the co-teaching experience (Izzo, Murray, & Novak, 2008).

CTM and the co-teaching process lends itself well to effective integration of technology in the classroom because two individuals are present to handle the added complexity. Teaching with technology typically involves four major components: the course content, the instructor, the students, and the technology tools (Morra & Reynolds, 2010; Zhu & Kaplan, 2013). The mentor and mentee must consider each of these components in planning a lesson and in curriculum development (Kirkwood & Price, 2014). Using a framework that incorporates each of these elements during CTM planning sessions can maximize instructional success with technology.

How Technology Changes the Mentoring Roles

Technology platforms and their use vary widely across academic settings. During a CTM experience, the best way is to start with adding instructional technology components slowly. Even if both mentor/mentee are technologically savvy, the relationship between the mentor and mentee needs to develop around the facilitation of teaching and learning process, not the type of technology (Zhu & Kaplan, 2013). For those mentees with lower technology literacy levels, providing small steps and building experiences may be essential. The more complex the educational technology, the more time that may be needed for course planning, development of materials, and the overall mentoring process (Kirkwood & Price, 2014; Stansberry, 2003; Zhu & Kaplan, 2013). Therefore, time for managing activities throughout a term would be greater than expected for both the mentor and mentee when using any types of educational technologies in CTM. Both mentors and mentees need to be aware of this time commitment when integrating technology tools, to discuss the issues in the planning session(s), and to be flexible throughout the entire learning experience, as new or unexpected situations arise (Henderson et al., 2007).

One final issue to consider is how the mentor views their role during the teaching process and how technology integration could support or conflict with that view (Zhu & Kaplan, 2013). If a mentor sees their primary role in teaching as that of an expert, an authority in a given field whose main task is to deliver information, it may be disconcerting to be placed in a situation where the incorporation of technology limits options for their scholarly input or control of the curriculum. There may be a role reversal with the mentee as the expert in the educational

technologies rather than the mentor (Jethro, Grace, & Thomas, 2012; Stansberry, 2003; Zhu & Kaplan, 2013). Moreover, compared to the mentor or mentee, students in today's higher education environment may know more about, and are more comfortable with, technology in some cases (Zhu & Kaplan, 2013). Again, if the co-teaching planning process is done well, the discussion on philosophies of teaching and learning will help guide the level of technology integration into the course and develop a more organized and beneficial mentoring process (Henderson et al., 2007).

Successful Mentoring Scholarship through Co-Teaching

A recent report (Hanover Research, 2014, p. 3) stated, "Although the particular format of successful mentoring models sometimes varies, successful programs all share certain characteristics that support the personal and professional development of faculty as they transition into new roles or seek to advance their careers." Following this argument, we suggest that CTM can be used as an established model for mentoring in a variety of disciplines and institutions of higher education. The key parts of mentoring through co-teaching discussed as the CTM model includes understanding the adult learner, building relationships, collaborating and communicating, identifying the various roles of the co-teaching members, and utilizing universal design for learning principles during the co-teaching process. If these ideas are utilized, we believe CTM will provide more successful faculty development experiences in the higher education environment.

Challenges for CTM

The framework we have laid out in this paper provides a plan for best practices in co-teaching. While the focus has been mostly positive, we understand that there are areas of concern in co-teaching. Some of the areas of concern addressed in this paper were differences in age, teaching philosophy, and technology proficiencies. There may be other areas that need further discussion including peer evaluation, administrative support, and unequal instructional responsibilities, yet these are common issues for any teaching and learning environment, not just for co-teaching (Johnson et al., 2016). We believe that by focusing on the planning and the learning outcomes, the mentor/mentee can build a strong foundation for CTM in any teaching environment.

Need for CTM in Higher Education

CTM can provide a support system that can foster equality and respect in the higher education environment. The co-teaching strategies in the CTM model we propose provides a mentoring framework for how faculty members in higher education can engage in the shared work of planning, organizing, delivering, and assessing instruction. Each of these CTM components is a standard element within the SoTL, which increases the success and scholarship of both the mentor and mentee. CTM is an effective model for mentoring in higher education as it allows for negotiation of roles in teaching, takes advantage of the expertise that each person brings to the partnership, and helps to set aside assumptions about traditional roles, thereby forging new ways of thinking, teaching, and learning (Harris & Harvey, 2000). As doctoral programs remain the premier training ground for our future scientists and scholars, higher education needs to ensure mentoring opportunities for graduate students so they can progress to be successful faculty members (Clark et al., 2000; Johnson, 2002; Johnson, 2015). Most importantly, CTM represents a powerful model of mentoring that allows for carefully chosen developmental experiences that are supported by reflection, critical analysis, and construction of meaning (Beard & Wilson, 2002; Brookfield, 2017).

The results of CTM are authentic and form the basis for future successful experiences as individual faculty members in higher education. Creating learning experiences through co-teaching may develop and enhance mentoring relationships, help create better professors and learning experiences for students, and empower all to become more effective and self-directed learners. We believe that CTM provides an evidence-based mentoring framework for faculty development for the higher education environment.

References

Bacharach, N., Heck, T. W., & Dahlberg, K. (2011). Co-teaching in higher education. *Journal of College Teaching & Learning (TLC), 4*(10), 9-16.

Badiali, B., & Titus, N. E. (2010). Co-teaching: Enhancing student learning through mentor-intern partnerships. *School-University Partnerships, 4*(2), 74-80.

Beard, C., & Wilson, J. P. (2002). *The power of experiential learning: A handbook for trainers and educators.* Herndon, VA: Stylus Publishing.

Beninghof, A. M. (2012). *Structures and strategies for maximizing student learning.* San Francisco, CA: Jossey-Bass.

Beretz, E. M. (2003). Hidden disability and an academic career. *Academe, 89*(4), 51-55.

Boyle, P., & Boice, B. (1998a). Best practices for enculturation: Collegiality, mentoring, and structure. *New Directions for Higher Education, 1998*(101), 87-94.

Boyle, P., & Boice, B. (1998b). Systematic mentoring for new faculty teachers and graduate teaching assistants. *Innovative Higher Education, 22*(3), 157-179.

Brookfield, S. D. (2017). *Becoming a critically reflective teacher*. Hoboken, NJ: John Wiley & Sons.

Brown, H. N. (1999). Mentoring new faculty. *Nurse Educator, 24*(1), 48-51.

Buell, C. (2004). Models of mentoring in communication. *Communication Education, 53*(1), 56-73. doi:10.1080/0363452032000135779

Cassard, A., & Sloboda, B. (2014). Leading the charge for SoTL: Embracing collaboration. *InSight: A Journal of Scholarly Teaching, 9*, 44-53.

Clark, R. A., Harden, S. L., & Johnson, W. B. (2000). Mentor relationships in clinical psychology doctoral training: Results of a national survey. *Teaching of Psychology, 27*, 262–268.

Conderman, G., Bresnahan, V., & Pedersen, T. (2009). *Purposeful co-teaching: Real cases and effective strategies*. Thousand Oaks, CA: Corwin Press.

Cook, L., & Friend, M. (1995). Co-teaching: Guidelines for creating effective practices. *Focus on Exceptional Children, 28*(3), 1-16.

Crisp, G., & Cruz, I. (2009). Mentoring college students: A critical review of the literature between 1990 and 2007. *Research in Higher Education, 50*(6), 525-545. doi:10.1007/s11162-009-9130-2

Crow, J., & Smith, L. (2005). Co-teaching in higher education: Reflective conversation on shared experience as continued professional development for lecturers and health and social care students. *Reflective Practice, 6*(4), 491-506.

D'Abate, C. P., Eddy, E. R., & Tannenbaum, S. I. (2003). What's in a name? A literature-based approach to understanding mentoring, coaching, and other constructs that describe developmental interactions. *Human Resource Development Review, 2*(4), 360-384.

Dhed, A. M., & Mollica, M. (2013). Mentoring new faculty. *Procedia-Social and Behavioral Sciences, 106,* 1821-1824.

Di Prospero, L., & Bhimji-Hewitt, S. (2011). Learning is in the facilitation: Faculty perspectives with facilitated teaching and learning. *Journal of Allied Health, 40*(4), 61E-65E.

Duda, R. B. (2004). Faculty development programs promote the academic advancement of the faculty. *Current Surgery, 61*(1), 93-95.

Friend, M., Cook, L., Hurley-Chamberlain, D., & Shamberger, C. (2010). Co-teaching: An illustration of the complexity of collaboration in special education. *Journal of Educational and Psychological Consultation*, *20*(1), 9-27.

Gappa, J. M., & Austin, A. E. (2010). Rethinking academic traditions for twenty-first-century faculty. *AAUP Journal of Academic Freedom, 1*, 1-20.

Gillespie, D., & Israetel, A. (2008). *Benefits of co-teaching in relation to student learning*. Paper presented at the 116th Annual Meeting of the American Psychological Association, Boston, MA. Retrieved from http://files.eric.ed.gov/fulltext/ED502754.pdf.

Hanover Research. (2014). *Faculty mentoring models and effective practices*. Retrieved from http://www.hanoverresearch.com/media/Faculty-Mentoring-Models-and-Effectives-Practices-Hanover-Research.pdf

Harris, C., & Harvey, A. N. (2000). Team teaching in adult higher education classrooms: Toward collaborative knowledge construction. *New Directions for Adult and Continuing Education, 2000*(87), 25-32.

Hénard, F., & Roseveare, D. (2012). *Fostering quality teaching in higher education: Policies and practices*. Retrieved from https://www.oecd.org/education/imhe/QT%20polic ies%20and%20practices.pdf

Henderson, C., Beach, A., & Famiano, M. (2007, January). *Diffusion of educational innovations via co-teaching*. Paper presented at the Physics Education Research Conference, Syracuse, NY. doi:10.1063/1.2508706

Izzo, M. V., Murray, A., & Novak, J. (2008). The faculty perspective on universal design for learning. *Journal of Postsecondary Education and Disability, 21*(2), 60-72.

Jethro, O. O., Grace, A. M., & Thomas, A. K. (2012). E-Learning and its effects on teaching and learning in a global age. *International Journal of Academic Research in Business and Social Sciences, 2*(1), 203-210.

Johnson, W. B. (2002). The intentional mentor: Strategies and guidelines for the practice of mentoring. *Professional Psychology: Research and Practice, 33*(1), 88-96.

Johnson, W. B. (2015). *On being a mentor: A guide for higher education faculty*. New York, NY: Routledge.

Johnson, L., Becker, S. A., Cummins, M., Estrada, V., Freeman, A., & Hall, C. (2016). *NMC horizon report: 2016 higher education edition*. Retrieved from http://cdn.nmc.org/media/2016-nmc-horizon-report-he-EN.pdf

Kezar, A. J. (2006). Redesigning for collaboration in learning initiatives: An examination of four highly collaborative campuses. *Journal of Higher Education, 77*(5), 804-838. doi:10.1080/00221546.2006.11778945

Kirkwood, A., & Price, L. (2014). Technology-enhanced learning and teaching in higher education: What is 'enhanced' and how do we know? A critical literature review. *Learning, Media and Technology, 39*(1), 6-36.

Knowles, M. S. (1980). *The modern practice of adult education*. Englewood Cliffs, CA: Prentice Hall/Cambridge.

Kohler-Evans, P. A. (2006). Co-Teaching: How to make this marriage work in front of the kids. *Education, 127*, 260-264.

Kreber, C. (2007). What's it really all about? The scholarship of teaching and learning as an authentic practice. *International Journal for the Scholarship of Teaching and Learning, 1*(1), Article 3. https://doi.org/10.20429/ijsotl.2007.010103

Kuh, G. D. (2007). Piecing together the student success puzzle: Research, propositions, and recommendations. *ASHE Higher Education Report, 32*(5), 1-178. doi:10.1002/aehe.3205

Kukulska-Hulme, A. (2012). How should the higher education workforce adapt to advancements in technology for teaching and learning? *The Internet and Higher Education, 15*(4), 247-254.

Lester, J. N., & Evans, K. R. (2009). Instructors' experiences of collaboratively teaching: Building something bigger. *International Journal of Teaching and Learning in Higher Education, 20*(3), 373-382.

Malaney, G. D. (1988). Graduate education as an area of research in the field of higher education. *Higher Education: Handbook of Theory and Research, 4*, 397-454.

Mastropieri, M. A., Scruggs, T. E., Graetz, J., Norland, J., Gardizi, W., & Mcduffie, K. (2005). Case studies in co-teaching in the content areas: Successes, failures, and challenges. *Intervention in School and Clinic, 40*(5), 260-270.

Merriam, S. B., & Caffarella, R. S. (1991). *Learning in adulthood: A comprehensive guide*. San Francisco, CA: Jossey-Bass.

Morin, K. H., & Ashton, K. C. (2004). Research on faculty orientation programs: Guidelines and directions for nurse educators. *Journal of Professional Nursing, 20*(4), 239-250.

Morra, T., & Reynolds, J. (2010). Universal design for learning: Application for technology-enhanced learning. *Inquiry, 15*(1), 43-51.

Nelsey, L., & Brownie, S. (2012). Effective leadership, teamwork and mentoring: Essential elements in promoting generational cohesion in the nursing workforce and retaining nurses. *Collegian, 19*(4), 197-202.

Nick, J. M., Delahoyde, T. M., Del Prato, D., Mitchell, C., Ortiz, J., Ottley, C., ... & Siktberg, L. (2012). Best practices in academic mentoring: A model for excellence. *Nursing Research and Practice*, *2012*, 1-9. doi:10.1155/2012/937906

OECD. (2018). *The future of education and skills: Education 2030*. Retrieved from https://www.oecd.org/education/2030/E2030%20Position%20Paper%20(05.04.2018).pdf

Orlander, J. D., Gupta, M., Fincke, B. G., Manning, M. E., & Hershman, W. (2000). Co-teaching: A faculty development strategy. *Medical Education, 34*(4), 257-265.

Ortiz-Walters, R., & Gilson, L. L. (2005). Mentoring in academia: An examination of the experiences of protégés of color. *Journal of Vocational Behavior, 67*(3), 459-475.

Piercy, F., Giddings, V., Allen, K., Dixon, B., Meszaros, P., & Joest, K. (2005). Improving campus climate to support faculty diversity and retention: A pilot program for new faculty. *Innovative Higher Education, 30*(1), 53-66.

Potter, M. K., & Kustra, E. (2011). The relationship between scholarly teaching and SoTL: Models, distinctions, and clarifications. *International Journal for the Scholarship of Teaching and Learning, 5*(1), Article 23. doi:10.20429/ijsotl.2011.050123

Ramaswami, A., & Dreher, G. F. (2011). The benefits associated with workplace mentoring relationships. In T. D. Allen & L. T. Eby, L.T. (Eds.), *The Blackwell handbook of mentoring: A multiple perspectives approach* (pp. 211-231). Hoboken, NJ: John Wiley & Sons.

Sambunjak, D., Straus, S. E., & Marusic, A. (2010). A systematic review of qualitative research on the meaning and characteristics of mentoring in academic medicine. *Journal of General Internal Medicine, 25*(1), 72-78.

Sparkman, L., Maulding, W., & Roberts, J. (2012). Non-cognitive predictors of student success in college. *College Student Journal*, *46*(3), 642-652.

Stansberry, S. (2003). *Understanding why faculty use (or don't use) IT: Implementation of instructional technology from an organizational culture perspective*. In Society for Information Technology & Teacher Education International Conference (Vol. 2003, No. 1, pp. 1330-1337). Albuquerque, NM: Association for the Advancement of Computing in Education (AACE. Retrieved from https://www.learntechlib.org/p/18165/

Stewart, D. W. (2006). Generational mentoring. *The Journal of Continuing Education in Nursing, 37*(3), 113-120.

Trask, B. F., Marotz-Baden, R., Settles, B., Gentry, D., & Berke, D. (2009). Enhancing graduate education: Promoting a scholarship of teaching and learning through mentoring. *International Journal of Teaching and Learning in Higher Education, 20*(3), 438-446.

Walters, K., & Misra, J. (2013). Bringing collaborative teaching into doctoral programs: Faculty and

graduate student co-teaching as experiential training. *The American Sociologist, 44*(3), 292-301.

Zellers, D. F., Howard, V. M., & Barcic, M. A. (2008). Faculty mentoring programs: Reenvisioning rather than reinventing the wheel. *Review of Educational Research, 78*(3), 552-588.

Zhu, E., & Kaplan, M. (2013). Technology and teaching. In W. McKeachie & M. Svinicki (Eds.), *McKeachie's teaching tips* (14th ed.) (pp. 232-264). Independence, KY: Wadsworth (Cengage).

Zinn, L. (2004). Exploring your philosophical orientation. In M. W. Galbraith (Ed.), *Adult learning methods: A guide for effective instruction* (3rd ed.) (pp. 39-74). Malabar, FL: Krieger Publishing Co.

_____

LESLIE CORDIE is an Assistant Professor at Auburn University. She has over 20+ years of combined interdisciplinary experiences across many organizations, including higher ed, healthcare, and industry. Her background includes online learning, adult education, faculty/professional development, instructional design, and program development. Cordie holds a PhD in Education, with specializations in distance learning, adult learning theory, technical writing, instructional design and curriculum development. Cordie also holds a MBA, and her professional experience includes positions with the airline industry and the US Air Force.

XI LIN is an Assistant Professor in the Department of Interdisciplinary Professions at East Carolina University. Her research focuses on instructional strategies for distance learning, mobile learning, learning motivations of adult learners, and international students and international faculty in the US higher education. Lin has won multiple awards for her research, including several from the American Association of Adult and Continuing Education (AAACE).

TABITHA BRECKE graduated from Auburn University in May 2016 with a Ph.D. in Adult Education. Brecke currently works as an accommodation specialist in the Office of Accessibility and serves as an adjunct professor for the Adult Education program at Auburn. Prior to her doctoral program, she worked in the rehabilitation field as a rehabilitation teacher, counselor and supervisor. Brecke has presented on adult teaching and learning at several national conferences.

MICHAEL WOOTEN is Professor of Genetics and Assistant Chair in the Department of Biological Sciences at Auburn University and serves as the Online Course Coordinator for the College of Sciences and Mathematics. For 30+ years he has instructed on various genetics and biological sciences courses. Wooten has been an early adopter of digital technologies and developed the first fully online course in his department (Genetics). Wooten is an author of 80+ research articles on topics ranging from endangered species to neurological disease. He is currently formalizing a new educational model for higher education that focuses on this critical transitional period of learning.

Using Lifemaps to Build Capacity for Educational Leadership

Heather P. Williams and Esther A. Enright
Boise State University

This study examines the impact of a pedagogical strategy using individual life mapping as a foundational piece of a graduate educational leadership program. We argue that active learning opportunities, like life mapping, allow educational leadership students to explore more fully their sense-making processes about systems leadership, which is foundational to their developing mindsets and leadership skills. Jäppinen (2014) suggests that educational leadership programs should aim to allow students to make sense of the complexity around them and study the viewpoint of collaborative non-linear human interactions in their journey to leadership. Data and artifacts were collected from 41 graduate students; their ages ranged from 29 to 65 with the median age being 46. All the participants were enrolled in the closed-cohort, executive educational leadership program working toward an Educational Specialist degree and superintendent certification. The final condensing of the initial categories into macro-level themes illustrated that students perceived the life mapping activity as a catalyst for learning about themselves and others, building a successful cohort, and affirming their decisions to become systems leaders.

Most traditional leadership models focus on top-down, bureaucratic structures which no longer work in complex contexts and research suggests the need for a system-level or systems view of leadership that focuses on the dynamic and complex nature of the environment leaders are asked to serve (Apenko & Chernobacya, 2016; Hannah, Campbell & Mathews, 2010; Uhl-Bien, Marion & McKelvey, 2007). This study is grounded in the assumption that graduate programs are intended to prepare future school system leaders with the knowledge and capacity to navigate complex educational issues and systems. Heylighen (2008) describes this system-level complexity as consisting of many interacting components that undergo constant change both in an autonomous way and in interaction with one another and their social environment. We argue that active learning opportunities like a life-mapping session allow educational leadership students to more fully explore their sense-making processes about systems leadership, which is foundational to their developing mindsets and leadership skills.

This study examines the impact of a pedagogical strategy using individual life mapping as a foundational piece of a graduate educational leadership program. The program prepares superintendents and system-level leaders to lead innovation processes in the increasingly complex landscape of public education. The program also utilizes a closed cohort structure, and the life-mapping activity that is the focus of this study takes place in the first semester of the program. We use life-maps as a catalyst for identity development of both the cohort as a collaborative group and each individual as a system leader. The purpose of this study is to examine the students' perceived impact of the life-mapping activity on their leadership, cohort membership, and identity as system-level leaders. To advance our understanding of how the life-mapping activity served to enhance our pedagogical goals, we posed the following research question: What impact does life-mapping as an active learning activity have on graduate students enrolled in an educational leadership program focused on developing systems leaders? In particular, we focused on the activity's implications for program completion, students' learning, cohort membership, and identity development as systems leaders.

Theoretical Framework

We sought to understand the relationship between various teaching practices and how they come together in the life-mapping activity to help students make sense of their learning journeys and begin to develop identities as systems leaders. Students physically make maps of their inner cognitive landscapes and share those with others in the cohort within a "circle of trust." The activity relies on pedagogy of vulnerability to create a connection for students to engage in the development of complex adaptive leadership and sense making related to their leadership journey, as well as constructivist narratives and cartographies to position themselves in their leadership development and cultivate a sense of belongingness in a graduate cohort.

Prior to the activity, students read "A Sense of Place" written by William R. Ferris in an effort to get students to think about their "little postage stamp of native soil" and their historical sense of place as it defines them as leaders and members of the cohort. Ferris original wrote the piece for a speech made to the Commonwealth Club of San Francisco (1996) and later adapted it to an article (1998). In the article, Ferris states (p. 3):

> For we Americans are taught to devalue the places we come from. We are taught to abandon old worlds. We are taught that to achieve success and make a mark on society, we must separate ourselves from our roots…but these places,

memories, and values are essential to life and should not be abandoned in the name of progress.

This reading is coupled with the article "Sacred Cartography" (DeBlieu, 2000) where the author poses the question:

> With astronauts creating a precise 3-D map of the Earth and biologists mapping the human genome, technology is introducing new ways to chart human territory. But what about our personal territories, the ones we carry in our memories and curiosity? We map, each of us, mentally and physically every day of our lives. We map to keep ourselves oriented and to keep ourselves sane. Making an actual physical map of something you feel in your heart can be powerful…seeking to keep your bearings in a shifting world.

The intent of engaging students in these readings prior to the active learning of creating their life map is to help soften their armor, as well as to begin to open their thinking about who they are as leaders and where they came from. As students examine their self-identity and landscape as leaders, we hope they become open to deeper examination of self, others, and their practice as educational leaders, thus allowing space for the learning within the program and cohort to become more relevant.

Pedagogy of vulnerability builds a climate of trust and a practice of critical self-reflection in the process of co-learning (Brantmeier, 2013). In addition, Brantmeier (2013) defines pedagogy of vulnerability as an approach to education that invites vulnerability and deepens learning through a process of self and mutual disclosure on the part of co-learners in the classroom. In the life-mapping activity, students are asked to create a visual map of the places, people, and events that got them to this point – the beginning of their journey as graduate students working to become systems leaders in education.

As part of the life-mapping activity, the graduate students share their map with the cohort within a "circle of trust" where confidentiality is observed. Circle of trust is a term drawn from Parker Palmer's (2004) book, *A Hidden Wholeness*, in which he describes the unique qualities of this practice:

> A circle of trust is a group of people who know how to sit quietly "in the woods" with each other and wait for the shy soul to show up. The relationships in such a group are not pushy but patient, they are not confrontational but compassionate; they are filled not with expectations and demands but an abiding faith in the reality of the inner teacher and in each person's capacity to learn from it . . . The people who help

us grow toward true self offer unconditional love, neither judging us to be deficient nor trying to force us to change but accepting us exactly as we are. And yet this unconditional love does not lead us to rest on our laurels. Instead, it surrounds us with a charged force field that makes us want to grow from the inside out—a force field that is safe enough to take the risks and endure the failures that growth requires (pp. 59–60).

Love (2012) describes Palmer's "circles of trust" as having hallmarks to gently welcome into the circle compassion, a sense of invitation to participate, unconditional love, and faith in each participant's "inner teacher"—all qualities that nurture the "shy soul" to emerge. Simultaneously, these guiding tenets prohibit behaviors that stunt the growth of soul: communicating expectations or judgment, confrontation, or the "fixing" of others. In these ways, every circle of trust launches an educational journey toward the discovery of each participant's authentic self. The goal is to bring out that which is found within the learner. While much of education is focused on transmitting knowledge and acquiring understanding, the intersection of that knowledge with the human heart—with one's values and life experience—is what makes learning come alive.

We rely on others to help us to define who we are and how to be in the world, to help us figure out what should be important, and to learn how we might be most productive as leaders. Palmer (1998) suggests, "A learning space must have features that help students deal with the dangers of an educational expedition: places to rest, places to find nourishment, even places to seek shelter when one feels overexposed" (p. 75). A cohort structure can create that learning space for students. Students within a cohort exist in a collaborative journey, enjoying their particular grasp on the world as unique human beings, each embarking on their own specific journey, as well as the collective group embarking on a "course of study with its challenges, time sequences, situations" (Barnett, 2007, p. 27). Together they are forming their "identity" as educational leaders, as defined by Palmer (2004) as the "whole" identity, grounded in integrity and complexity: "an integrity that comes with being what you are" (p. 3) and a "complex integration that spans the contradictions between inner and outer reality that supports both personal integrity and the common good" (p. 21). Nevertheless, as Palmer notes, we need to continue to find ways of learning with our whole selves—and in community with others—if we want to move beyond surface learning that is short lived. Chadsey (2012) makes the case that we need to engage learning and learners in ways that make it possible to deepen and transform minds and hearts by quoting Parker Palmer:

In every discipline, knowledge is generated through a communal process. This requires habits of mind and heart that allow us to interact openly and honestly with other knowers and with the subject to be known—such habits as a capacity to care about the process, the willingness to get involved, the humility to listen, the strength to speak our truth, the willingness to change our minds. The more closely a pedagogy can emulate this communal process, cultivating these habits of mind and heart as it goes along, the deeper the learning will go. *(p. 3)*

Bennis (2009) makes a case for the importance of self-knowledge as leaders, claiming self-knowledge and self-invention are lifetime processes: "You make your life your own by understanding it" (p. 64). How do we make sense of ourselves as leaders and map our course for leadership that thrives in complex environments? The life-mapping activity creates an opportunity for sense-making by students to position themselves in their pursuit of an advanced degree and knowledge of systems leadership. Weick, Sutcliffe, and Obstfeld (2005) argue that sense-making deals with the interplay between action and the interpretation of that action. Further, research confirms that sense-making is a key leadership capability for understanding the complex world and the missing link between leadership theory and the actual everyday change of improving leaders' practice (Ancona, 2012; Thomson & Hall, 2011). Further, Jäppinen (2014) suggests that educational leadership programs should aim to allow students to make sense of the complexity around them and to study the viewpoint of collaborative non-linear human interactions in their journey to leadership.

Data Collection Methods and Analysis

This article presents an analysis of data gathered from multiple cohorts in an executive leadership program at a large, public doctoral granting university in the western United States. This study draws from data across multiple sources: students' life maps, student surveys, end of semester course evaluations, and unprompted student emails.

The program in this study uses a cohort structure to facilitate the development of leadership skills and dispositions, as well as to foster a sense of belonging. The program being studied is in its fifth year and has a one hundred percent retention rate of students. In graduate programs in education, cohorts are defined as "a group of about 10-25 students who begin a program of study together, proceed together through a series of developmental experiences in the context of that program of study, and end the program at approximately the same time" (Lei, Gorelick, Short,

Smallwood, & Wright-Porter, 2011, pp. 497-498). The cohort-based model fosters the dynamics of group cohesion. Students in the program develop their leadership mindsets, toolsets, and skillsets while trekking alongside other students on a collective educational expedition; therefore, it is important that they have some understanding of not only their own inner landscapes but also their co-learners.

In this study, 41 graduate students participated; their ages ranged from 29 to 65 with the median age being 46. All the participants were enrolled in the closed-cohort, executive educational leadership program working towards an Educational Specialist degree and superintendent certification. Of the participants, 76 percent identified as men and 24 percent as women. All the participants previously completed one or more graduate degrees, and 60 percent were currently serving as full-time administrators (e.g., building principals, curriculum directors, other building or central office administrators) while 40 percent were currently serving as full-time teachers, counselors, or instructional coaches. One researcher was also one of the instructors who facilitated the life-mapping activity. Her positionality was ever present in the research process; therefore, the other author actually did the coding and data analysis alone to determine themes and trends.

Data was collected during the fall semesters from 2014-2017 with a total of 41 students across three cohorts participating in the study. Data collection included pictures of the actual life maps, end of course evaluations, course completion rates, program completion rates, and unsolicited emails sent to the instructor regarding life maps. Life mapping was used to capture students' professional and personal journeys that brought them to the program and to the cohort. In the activity, students are asked to consider what or where are the jungles, mountains, and rivers in their lives as leaders? Some people map their life events—births, deaths, marriages, geographic moves—but students are also asked to think beyond just the facts and allow the other cohort members to see their authentic mental maps. We each have experienced multiple deaths when our hopes and dreams get cut off and then take a new direction. Students are asked to consider what forks were in the road that led them to become students in this program and members of this cohort?

The actual maps were used as data, as well as student reflections on the activity. A/r/tography defines itself as a form of living inquiry, which involves working from a "continuous reflective and reflexive stance to engagement, analysis, and learning" (Irwin & Springgay, 2008, p. xxix).

In addition, one cohort of students (n=16) provided survey data from a photo-elicitation activity. Photo-elicitation is a method of interview in visual sociology

that uses visual images to elicit comments (Epstein, Stevens, McKeever & Baruchel, 2006; Ortega-Alcázar & Dyck, 2011). During their fourth semester together, students were shown photographs of their life maps (created during the first semester together) through a PowerPoint slideshow that was projected for the class to see. They were then asked to individually respond in writing to the following three questions:

> What impact did the life mapping have on you as a leader?
> How does seeing the image of your life map impact you as a student in this program?
> What does the image of your life map tell us about you as a system leader?

Describing a journey is different from describing a single moment in time; therefore, the prompts were written in an effort to explore shifts over time and space in how participants described the impact of the activity. According to Kobayashi, Fisher, and Grapp (2008), photographs are an important means of collecting and analyzing qualitative data. They help in the retrospection of lived experiences of participants and combining photographs with other forms of data collection ensures contextual validity through triangulation.

Mapping conveys spatial relationships, thus our purpose is to help students understand their own complex context—highlighting significant features of their leadership journey, proposing limits and establishing direction, and in many cases revealing the emotive nature of "places" on their map. The instructors make a wide array of media readily available to the students to aid them in the creation of their life maps (Horovitz- Darby 1994). Drawing instruments include drawing pencils and erasers, colored drawing pencils, fine and broad-tipped colored markers, and large and small crayons. We also provide a choice of white paper (sizes 8.5" x 11" to 24" X 36") or colored construction paper (sizes 8.5" X 11" and 12" x 18"). Students also have available scissors, glue sticks, and rulers, as well as a variety of magazines and newspapers. Students often clip items from the latter media and paste them onto the life map to illustrate events or meaningful places. There is abundant data that ends up on the large maps representing each student's journey to systems leadership and specifically to our program. We take care in stressing the central function of the life map is to express and communicate a personal reality rather than to assess someone's artistic talent (Kahn, 1999).

Students complete this activity together in a casual, community environment in the evening; there is food present, and the course instructors are absent. Students are working in close proximity yet have room to spread out their work areas. It is also important to note that the creation of the life maps occurs in the evening following team building activities earlier in the day, and students actually present their maps and narrative the following morning in a circle of trust with the cohort members and course instructors.

Data Analysis

All the surveys, emails, and course evaluation comments were recorded on an Excel spreadsheet, separated by type of data. The researchers engaged in a three-stage coding process – beginning with *In Vivo* coding, then the categorization of those initial codes, and finally descriptive code mapping. The instructor/researcher (IR) did not participate in the pre-coding, first round, or second round of coding since she was already familiar with the data and had access to other sources of data on the students. The Critical Friend/Researcher (CFR) coded the data by utilizing an iterative thematic approach (Saldaña, 2016). During the pre-coding preparation, the CFR read and reread the data, familiarizing herself with the content and developing an awareness of connections across the data (DeWalt & DeWalt, 2011). In the first round of coding, the CFR built on that pre-coding work utilizing an *In Vivo* coding process, employing the direct language of the graduate students to ground the data analysis process in the participants' voices, perspectives, and micro-cultures (Manning, 2017; Saldaña, 2005). The CFR drew out *In Vivo* codes for every line of text. During the second round of coding the CFR examined the initial codes to look for commonalities and differences. This examination allowed the CFR to group like thematic codes into categories. The CFR wrote memos to clarify her thinking regarding the groupings. In the final round of coding, the CFR and IR separately examined the categories and compared their descriptions of the central themes across the categories. They did not find any differences in the final groupings.

Findings

In Vivo coding yielded 256 participant phrases. The initial categorization of the *In Vivo* codes into clusters of descriptive codes were organized into 11 different categories. Finally, the initial categories were condensed into macro-level themes (Tables 1-3).

Discussion

The final condensing of the initial categories into macro-level themes illustrated that students perceived the life-mapping activity as a catalyst for learning about themselves and others, successful cohort building, and affirmation of their decision to become systems leaders. The sharing of the outer maps – the ones students are

Table 1
Phases II and II – Descriptive Code Mapping: Theme A, Making Personal Reflection Public Through Life-Mapping

Category	Sample of Related Codes
Category 1. Reported Foci of Life Mapping	"Reflect on who I was" "Reflect on why I am going in the direction I am" "Reflect on where I want to be" "Reflect on my journey as an educational leader" "Reflect on people" "In depth reflection of one's own leadership" "Life mapping helped me reflect on the journey."
Category 2. Perceived Outcomes of Life Mapping	"map it [reflection] out" led to remember more often" "very therapeutic" "Leveraged reflection on core values to make decisions" "Brought us together as a cohort" "knowing oneself better" "the real impact came from the bonding we developed from our strong emotional reaction to our posters and to our member's life maps." "The emotion, authenticity, and willingness to be vulnerable helped me gain the trust of our cohort." "It was therapeutic in my leadership and helped me gain perspective and vision." "having empathy for others and their journeys" "the activity helped me to form a bond with those who would have an immense impact on the next year of my education and ultimately my life with regards to friendship and networking partners." "It makes me feel as though I have place in this program, my job, state & world. People care about my story & where I came from."
Category 3. Reported Understandings of Self from Life Mapping	"core values" "opened my eyes to what kind of system and eco system might be best for my skills and philosophy on leadership." "true beliefs" "Remind me of all the times I persevered with conflict" "life mapping made me realize that I am a product of many of the places and experiences I have lived." "Reminded me about my strengths as person and leader" "it was valuable for me to reflect and look back what events and aspects of my life had the most impact on who I am as a person."
Category 4. Reported Understandings of Others from Life Mapping	"Understanding others in cohort on a personal level" "Understanding others' perspectives in cohort" "People as positive or negative influencers" "It helped me see that others have life stories and maps that influence them in their decision making." "Education is social and people all come with a different frame of reference from life experiences that influence the journey."
Category 5. Reported Understandings of the Process of Life Mapping	"Willing to be vulnerable" catalyst for building trust" "reinforced the idea of connection and the importance of networking" "the art of academic inquiry" "authentic connections"

Table 2
Phases II and II – Descriptive Code Mapping: Theme B Centering Pre-service
Systems Leaders as Students through Life-Mapping

Category	Sample of Related Codes
Category 6. Shift in Agency, Belonging, and Other Affective Domains	"It makes me feel as though I have place in this program, my job, state & world." "Stronger!" "I have been amazed how I have grown in my leadership skills and who I am as a person." "Identifying areas that I need to grow on I can call on others to give valuable advice." "It evokes feelings and emotion on where I was then and where I am now. I'm proud of my growth and I would not have experienced this without the cohort." "Seeing my life map, brings back an emotional sense of uneasiness in bringing back the anxiety and emotions that I experienced that day having to peel back the layers to share the true base of who I am as a person and the experiences that I have gone through to create the person that I am today."
Category 7. Emerging Beliefs	"People care about my story & where I came from." "our uniqueness makes us funny, engaging, effective, etc." "We all come from different backgrounds and each of us offer different skills we bring to the table." "To be a good, effective leader you have to be able to build relationships and trust to move forward and guide change." "In order to build those types of relationships, you also have to know yourself and your strengths."
Category 8. Appreciation of the Pedagogy of Life Mapping in a Cohort	"It was great to start at with who I am as a leader" "I actually enjoyed seeing all of our life maps as a cohort" "[I actually enjoyed] reflect[ing] on how much this team has meant to me over the past two years." "I didn't think I would enjoy the project, but learned so much about myself through the process and how past traumas have affected me as a leader." "Seeing my map…I appreciate my cohort members. Our relationships have developed much farther than I ever would have thought possible. The networking with our real world work is phenomenal." This program has taught me how to self-reflect and to make a change in my practice, as well as to help lead change. This project was the first part of that process of self-reflection.

willing share with their cohort – helped them discover unknown places within themselves as leaders, gain consciousness about their interior landscapes, and visualize their strengths and funds of knowledge that will help them be successful in the graduate program, as well in their leadership roles. Interestingly, the students did not reflect on any one of the specific pre-readings but reflected more on perceived traits of leaders and the value of the learning activity. Many of the theoretical frameworks and concepts from the course emerged in their reflections on the life-mapping activity through responses to survey questions and course evaluations.

Today, educational organizations and leaders at all levels of education systems have to adapt to ambiguity arising from their internal processes, relations with others, and the complexity in their political, social, and economic surroundings (Beabout, 2012). This study illustrates how developing our graduate students' understanding of their interactional sense-making process, in a cohort structure through the use of a life map pedagogy, builds their capacity as future system leaders. We contend that this active, sense-making process is foundational to their developing complex, adaptive leadership skills.

The findings support that the life map activity also creates an opportunity for students to develop a sense of belonging within the cohort. A sense of belonging, a feeling of connectedness, and a belief that one is important and matters to others in an organization rank third on most people's hierarchy of needs after physiological and safety needs (Maslow, 1954). Research has found that a sense of belonging influences graduate student retention and success (Lovitts, 2001; Strayhorn, 2012), and it has been tied to key educational outcomes such as academic self-concept, self-efficacy, intrinsic motivation, academic success, and persistence in higher education settings (Lovitts, 2001; Ostrove, Stewart, & Curtin, 2011; Strayhorn, 2012). Further, researchers O'Meara, Griffin, Kuvaeva, Nyunt, and Robinson (2017) argue that graduate programs must be designed to enhance a sense of belonging in ways appropriate to the distinct culture and nature of graduate education, noting that it is often more difficult for graduate students to find a sense of belonging than undergraduates because of their age, career, and family obligations.

Although we did not study the transfer of the learning that the life mapping activity from an academic to a professional context, we see potential for the participants to draw from their experiences with cohort building in their professional roles. More specifically,

Table 3
Phases II and II – Descriptive Code Mapping: Theme C, Using the Life-Map to Develop a Sense of Self as System-Leader

Category	Sample of Related Codes
Category 8. Expressed Philosophy of Leadership	"I don't think that my life map tells much about me as a systems leader. When I created it, I made it more to tell about my past life experiences. While I believe those experiences affect who I am as a leader, I don't think my life map necessarily depicts who I am as a leader." "Systems are affected by all the pieces and parts of the whole. For example, the human body is a complex system that depends of the health of multiple independent systems to work together."
Category 9. Professed Professional Aspirations	"I want to see change in the world. I want to BE that change through positive interactions & an attitude." "I wonder if part of me as a leader is to help people on their own journeys and help them realize their potential or paths that they could take. Or help them feel safe to take on new challenges or risks. I love growing professionals. :)" "…allowed us to envision an "[State Name] of Educational Excellence" and realize that [our] Cohort is full of promise and energy." "I strive to put people first and understand that a "system" must be relative to the environment."
Category 10. Practicing Professional Self-Talk*:*	"I can overcome any obstacles that come my way. No matter what people say or do I can accomplish my dreams" "I will never stray from my core values. My faith and my family will never be compromised!" "…even though I will have many mountains to climb, I will not give up and keep me positive energy and relationship building mentality throughout my leadership journey." "I will think through decisions and how those might affect the people around me and the students those people impact. Each situation has a positive effect and often an unintended consequence." "With the knowledge and pulse of the people embedded in the system, you will be successful."
Category 11. Assessment of Self	"My core is still the same and I still hold the same values." "My life map was about my journey, and what I think about when I reflect is how many forks in the road took me places I had no idea I was going to go. I NEVER thought I would be a principal, definitely NEVER thought I'd be at the district office. And honestly, I never really knew I would be a teacher until I was 23 or 24 years old. I am led or called to things by what feels like kismet/serendipity…" "I cherish my sacred places in my life, and that the lifestyle within my sacred land has a unique cultural aspect which directly impacts my professional mindset. Living in the mountains all my life makes me a different leader than if I had grown up in an urban setting. Ono-traditional education is a focal point for my craft." "I feel that in having to map out myself as a person, it has demonstrated the level of strength and self-determination that I possess as a person and my ability to press through difficult situations to achieve my goals."
Category 12. Posing Questions	"Can an outdoor experience over a weekend have more positive impact on a student's life than all their seat time in Science class?"

we view students' development of their interactional sense-making process as a way to build capacity in their professional roles after completing their graduate program, and to support their continued connectedness with other systems leaders from their cohort as well as building relationships outside of their cohort. This capacity to connect can be a powerful professional skill, helping the graduates to foster feelings of belonging in their wider professional network and to protect themselves against feelings of isolation and burnout in their systems leader roles.

Implications of the Study

The study's findings illuminate the use of visual narratives as a pedagogical strategy for fostering self-belonging, cohort development, and self-identity as systems leaders. The findings also suggest that this

instructional activity may play a role in student retention and program completion. These findings have implications for not only the classroom level, but also program and institution levels. For example, faculty could strategically integrate cohort building experiences, such as life-mapping, into graduate programs in which cohort models are already utilized to organize applications, admissions, and course registrations. This intentional community building within a cohort model might be particularly beneficial in professional education programs where students will enter a network of professionals. Teaching students to connect with one another through activities such as life mapping, especially across differences in experience, worldview, and identity, might better equip them to continue this practice of connecting with other professionals outside of their cohort.

References

Ancona, D. (2012). Sensemaking. Framing and acting in unknown. In S. Snook, N. Nohria, & R. Kuharana (Eds.). *The handbook for teaching leadership. Knowing, doing, and being* (pp. 3-19). Thousand Oaks, CA: Sage.

Apenko, S., & Chernobaeva, G. (2016, April). *The influence of complex adaptive leadership on the efficiency of business management.* Paper presented at the International Conference on Management, Leadership & Governance, Saint Petersburg, Russia.

Barnett, R. (2007). *A will to learn: Being a student in an age of uncertainty.* London, UK: Open University Press.

Beabout, B. R. (2012). Turbulence, perturbance, and educational change. *Complicity: An International Journal of Complexity and Education, 9*(2), 15-29.

Bennis, W. G. (2009). *On becoming a leader.* New York, NY: Basic Books.

Brantmeier, E. J. (2013). Pedagogy of vulnerability: Definitions, assumptions, and applications. In J. Lin, R. Oxford, & E. J. Brantmeier (Eds.), *Re-envisioning higher education: Embodied pathways to wisdom and transformation* (pp. 95-106). Charlotte, NC: Information Age Publishing.

Chadsey, T. (2012). Principles and practices of the Circle of Trust® Approach. *New Directions for Teaching and Learning*, *130*, 3-14.

DeBlieu, J. (2000, May-June). Sacred cartography: Mapping your most intimate terrain. *UTNE Reader.*

DeWalt, K. M., & DeWalt, B. R. (2011). *Participant observation: A guide for fieldworkers* (2nd ed.). Lanham, MD: AltaMira Press.

Epstein, I., Stevens, B., McKeever, P., & Baruchel, S. (2006). Photo elicitation interview (PEI): Using photos to elicit children's perspectives. *International Journal of Qualitative Methods, 5*(3), 1-11. doi:10.1177/160940690600500301

Ferris, W. R. (1998). A sense of place. *Humanities, 19*(1) 1-5.

Hannah, S. T., Campbell, D. J., & Matthews, M. D. (2010). Advancing a research agenda for leadership in dangerous contexts. *Military Psychology, 22*(sup1), S157-S189. doi:10.1080/08995601003644452

Heylighen, F. (2008). Complexity and self-organization. In M. J. Bates & M. N. Maac (Eds.), *Encyclopedia of Library and Information Sciences.* New York, NY: Taylor & Francis. Retrieved from http://pespmc1.vub.ac.be/Papers/ELIS-complexity.pdf

Horovitz-Darby, E. G. (1994). *Spiritual art therapy.* Springfield, IL: Charles C Thomas.

Irwin, R. L., & Springgay, S. (2008). A/r/tography as practice-based research. In S. Springgay, R. Irwin, C. Leggo, & P. Gouzouasis (Eds.), *Being with*

a/r/tography (pp. xiii-xvii). Rotterdam, NL: Sense Publishers.

Jäppinen, A. K. (2014). Collaborative educational leadership: The emergence of human interactional sense-making process as a complex system. *Complicity: An International Journal of Complexity and Education. 11*(2), 65-85.

Kahn, B. B. (1999). Art therapy with adolescents: Making it work for school counselors. *Professional School Counseling, 2*(4), 291-298.

Kobayashi, K. Fisher, R., & Grapp, R. (2008, June). The use of photographs in operations management research. *Paper presented at the ANZAM Operations, Supply Chain & Services Management Symposium, Griffith University, Queensland, Australia.*

Lei, S., Gorelick, D., Short, K., Smallwood, L., & Wright-Porter, K. (2011). Academic cohorts: Benefits and drawbacks of being a member of a community of learners. *Education*, *131*(3), 497-504. Retrieved from http://eric.ed.gov/?id=EJ996368

Love, C. T. (2012). Dialing in to a Circle of Trust: A "medium" tech experiment and poetic evaluation. *New Directions for Teaching and Learning*, *2012*(130), 37.

Lovitts, B. E. (2001). *Leaving the ivory tower: The causes and consequences of departure from doctoral study.* Lanham, MD: Rowman & Littlefield.

Manning, J. (2017). In Vivo coding. In J. Matthes (Ed.), *The International Encyclopedia of Communication Research Methods (Vol. 1)*. New York, NY: Wiley-Blackwell. doi:10.1002/9781118901731.iecrm0270

Maslow, A. H. (1954). *Motivation and personality.* New York, NY: Harper.

O'Meara, K., Griffin, K. A., Kuvaeva, A., Nyunt, G., & Robinson, T. (2017). Sense of belonging and its contributing factors in graduate education. *International Journal of Doctoral Studies, 12,* 251-279. doi:10.28945/3903

Ortega-Alcázar, I., & Dyck, I. (2012). Migrant narratives of health and wellbeing: Challenging "othering" processes through photo-elicitation interviews. *Critical Social Policy*, *32*, 106-125.

Ostrove, J. M., Stewart, A. J., & Curtin, N. L. (2011). Social class and belonging: Implications for graduate students' career aspirations. *The Journal of Higher Education*, *82*(6), 748-774.

Palmer, P. (2004). *A hidden wholeness: The journey toward an undivided life.* San Francisco, CA: Jossey-Bass.

Palmer, P. (1998). *The courage to teach: Exploring the inner landscape of the teacher's life.* San Francisco, CA: Jossey-Bass.

Saldaña, J. (2016). *The coding manual for qualitative researchers.* Newbury Park, CA: Sage.

Saldaña, J. (2005). Theatre of the oppressed with children: A field experiment. *Youth Theatre Journal*, *19*(1), 117-133.

Strayhorn, T. L. (2012). *College students' sense of belonging: A key to educational success for all students.* New York, NY: Routledge.

Thomson, P. & Hall, C. (2011). Sense-making as a lens on everyday change leadership practice: the case of Holly Tree Primary. *International Journal of Leadership in Education*, *14*(4), 385-403.

Uhl-Bien, M., Marion, R., & McKelvey, B. (2007). Complexity leadership theory: Shifting leadership from the industrial age to the knowledge era. *The Leadership Quarterly, 18*(4), 298-318. doi:10.1016/j.leaqua.2007.04.002.

Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the process of sensemaking. *Organization Science*, *16*(4), 409-421.

_____

HEATHER P. WILLIAMS, Ph.D. is an Assistant Professor and Program Coordinator for Executive Educational Leadership at Boise State University. Her research interests include systems leadership and policy implementation to improve rural communities. Williams has spent over twenty-five years in public education, serving both in higher education and EC-12 as a superintendent, principal, curriculum director, teacher, coach, and school improvement consultant. She works nationally as a school improvement consultant providing training and development for both school boards members and school system leaders.

ESTHER A. ENRIGHT, Ph.D is an Assistant Professor at Boise State University. Her research focuses on teachers' and teacher leaders' access, experience, and outcomes in university-based preparation programs. Her research examines teacher education from K12 and higher education perspectives. She is especially interested in expanding access and fostering inclusion in teaching and teacher education for minoritized populations, including the role of university general education courses as spaces for student recruitment. She coordinates and teaches in the M.A. in Education Curriculum and Instruction program, as well as in the undergraduate teacher education programs at Boise State University.

Review of *How did you get here?* Students with Disabilities and their Journey to Harvard

Jennifer Joy
University of Nebraska at Kearney

This article reviews How did you get here? Students with disabilities and their journeys to Harvard, written by Thomas Herir and Laura A. Schifter. The authors explain the collegiate success stories of several students with varied disabilities and extrapolate themes from interviews with the students and people close to each of them. The book includes many detailed examples and thoughtful questions lead the analysis throughout. Overall, I highly recommend this book as the stories can be an inspiration to any student. Additionally, this book would be a fantastic addition to a course for new professionals in schools or for parents of a child with a disability. Publisher: Harvard Education Press (Boston. MA, 2015). ISBN: 9781612507811. List price: $35.00 (U.S.). 252 pages.

How did you get here? Students with disabilities and their journeys to Harvard by Thomas Herir and Laura A. Schifter details the stories of sixteen students with disabilities who have attended Harvard. Three students are deaf, three students are blind, one student is both deaf and blind, two students have cerebral palsy, one student has muscular dystrophy, five students have dyslexia, and one student has anxiety and learning disabilities. The chapters are broken into themes the authors discovered through the interview process with each student.

As both an educator and an advocate for children, I was drawn to this book because I am always interested in factors that instill resilience in children. Specifically, what was it about the students in this book that allowed them to beat the odds and continue to prevail when barriers came their way? Previous research has shown various dimensions of resilience, including hope and perseverance (Watson & Vogel, 2017), as well as self-belief in achievement, social skills, and a sense of belonging at school (Yilmaz Findik, 2016). I was very interested to see if these researchers found similar themes emerge or if additional information became evident that could positively impact the trajectory of more students in the future.

The theme of chapter one is the positive influence of parents who advocated for several of the students. One mother challenged the outcomes of her child's disability and the goals the district wanted her child to pursue. Additionally, parents taught their children to advocate for themselves and allowed their independence when appropriate. "Jennifer's parents fought for her when she needed it and gave her the skills to fight for herself" (p. 20). Authors detailed how parents taught children not to be ashamed of their disabilities by teaching them to speak up for what they need. "They (parents) always made sure I was in a situation where people appreciated both my strengths and weaknesses and where I was never made to feel stupid" (p.22). Additionally, many parents went above

and beyond to advocate for cultural understanding around their child's disability. For example, "All three deaf students reported close and sustaining relationships with the deaf community" (p. 26). The authors report that many of the students "credit their parents with advocating for them and giving them a positive identity as a person with a disability" (p. 28).

Chapter two highlights the people who have paved the way for each student's success. Supporters included teachers, speech therapists, early interventionists, physical therapists, and caseworkers. The authors found many students mentioned the teaching styles of the teachers being a key factor in their success, using words such as "fun and exciting" (p. 66) and "clear and explicit" (p.66). The authors make a wonderful statement that "any teacher can make the choice to believe in his or her students and let them know it" (p. 69). This support was clearly a theme across the stories presented by this group of students.

Chapter three demonstrates that the students in this group were intellectually driven. They asked to be challenged. They didn't allow people to set low expectations for them. Some of the students seemed to be inherently motivated and driven toward academic success, and others seemed to be inspired by the aforementioned groups (parents, teachers, etc.) who modeled this drive. A very critical question is asked by the authors: "How many students with disabilities have gone through school with their intellectual gifts ignored" (p. 87)? Additionally, in the chapter the authors initiate the discussion related to inclusion and what settings allow students to be most successful. This conversation is discussed further in the subsequent chapters.

Extracurricular activities are the topic of chapter four. The stories of the successful students included participation in multiple extracurricular activities including various sports and music. These activities allowed the students to develop friendships and become part of the community when fostered by various professionals.

Chapter five highlights the ways students advocated for their needs and developed strategies to maximize their strengths and minimize any barriers brought their way by their disabilities. Chapter six demonstrates the significant role technology has played in the success of this group of students.

Chapter seven is a detailed account of the experiences of one of the authors, Laura Schifter. The other author, Tomas Hehir, then accounts the changes he has made to his teaching as a result of what he learned through the process of interviewing each of these students. He states that "at various times in their educational careers, the students had to bear the 'burden' of disability more heavily than the schools" (p.181). Additionally, he discusses changes to his thoughts on universal design for learning, inclusion, ableism, and special education. He also emphasizes the importance of early intervention in paving the way toward academic success. Finally, Tomas Hehir explained some of the issues related to policy. "Hehir was responsible for federal leadership in implementing the Individuals with Disabilities Education Act (IDEA) and played a leading role in developing the Clinton administration's proposal for the 1997 reauthorization of IDEA" (p. 237). He mentions the importance of civil rights protection for students with disabilities on their road to success and the need to increase attention toward laws regarding technology and accommodations, along with other policy issues and recommendations.

Finally, the last chapter is a conclusion written by Wendy S. Harbour, the Lawrence B. Taishoff Professor of Inclusive Education at Syracuse University. She describes her story and discusses the programming she provides for students. In this chapter, she delves into the topic of transition planning and addresses some of the questions brought forth from parents of students with disabilities preparing for college, specifically, "Can students with *any* disability go to college" (p. 214)? In this chapter, some strategies are discussed for allowing access to higher education for students with intellectual disabilities. One solution mentioned is expanding and changing our views on intellectualism.

In the final chapter, Wendy Harbour states, "Many of these students struggled with whether or not to 'stay in the closet'" (p. 223) regarding disclosing their disability and the needs associated with it. This was a statement brought to light in many of the chapters in the book. It is unfortunate that this is still a common concern for students with disabilities. On that note, one thing I would have liked to see is broader range of disabilities represented. In the beginning of chapter four, the authors describe a recollection of one of the students saying, "Since he could not succeed at anything in school, he decided he would succeed at being a "badass"" (p.91). I worked with many students who displayed emotional disabilities, autism spectrum disorders, traumatic brain injuries, and various behavioral difficulties as a part of their disability, as part of a mental health issue, or as a means to avoid tasks that were difficult as a product of their disability. There were few references to behavioral or emotional struggles in the book. The issues related to the success of these populations may be quite different from the majority of the students represented in the book. In my experience, this is a group of students who still feel quite stigmatized and often choose not to receive the support they may need to be successful rather than declaring that they have an emotional need.

That being said, I did appreciate the portion of the Conclusion that addresses transition. While the stories were not directly compared to see if the outcomes for students with more "visible" disabilities, such as blindness, differed from students with less "visible" disabilities, such as dyslexia, in this chapter the authors do advocate for better outreach to the general student population. Specifically, students should be asked the following questions during college orientations according to the authors: *What are disability, medical, and counseling resources, and who can use them? Can disability services help people who don't think of themselves as disabled? Are people with disabilities welcome as part of the campus diversity? Are there courses about disability, student groups, or other ways to connect to disabled students and allies on campus? What does the campus mean by the term "disability," and could my "difference" actually be a "disability"? If I have a disability, isn't that a bad thing?* (p.219) This would allow the discussion to be open, and students with less visible disabilities may be able to better advocate for their own needs.

As a professional working with students with a whole variety of disabilities and needs, I always considered my most important role as being the advocate for the needs of each student and their welfare, including everything from basic safety to attaining their individual potential. Thus, I was quite eager to read this book. I was not disappointed. Since I worked for several years as a school psychologist, the information presented was not new to me, but it is a wonderful depiction of success that would be a fantastic addition to a course for new professionals in schools of any level, for parents of students with or without disabilities, and for students with or without disabilities. In fact, as I was reading, I kept thinking how these guidelines for success extend beyond students with disabilities attending Harvard. Having a strong support system, learning strategies for one's own success and advocating for oneself, and not allowing others to minimize one's dreams or to lower their expectations are just some of the themes that would help any person be successful.

The authors do express that this is an account of a small group of students, and I don't believe they tried to

overgeneralize toward a larger population. Still, more students and more stories may bring to light further themes to help others hoping to be successful in higher education. While the sample size in the book was rather small, many of the themes were consistent with the many students I worked with over the years. For example, while reading the chapter on extracurricular activities, I recall our team taking one seventh-grade boy who was consistently driving his teachers crazy by tapping on his desk in class and placing him in the band on the drums. His math teacher who had him the class after band came to me one day and said, "I never have any problems with him in class." I also remembered several students with autism benefiting from being included in gym class and playing basketball, swimming, and socializing with the other students through sports, which leveled the playing field in cases where students had limited abilities to verbally communicate with peers. The authors of the book discussed how school personnel are often quick to take away extracurricular activities, which I also saw far too regularly. I always tried to advocate for other solutions, and I hope more people in schools are doing the same.

Since the students were included because of being in special education, I was surprised that the authors used medical diagnoses rather than educational disability labels to describe the students. One example is dyslexia, which is a medical umbrella term and encompasses a variety of issues and needs, instead of the area of need under the category of a specific learning disability. According to the International Dyslexia Association (2002), dyslexia is "characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities." Thus, in Colorado, the education disability label would most likely be either a Specific Learning Disability (SLD) basic reading skill or SLD reading fluency or both, and possibly other areas as a result, such as written expression or math application.

Finally, one additional theme that was evident through reading the stories of these students, and in combination with the numerous students with whom I worked, is that we need to keep our focus on the "I" in IEP. The Individualized Education Program should be made to support each student to their own potential. In the book, the authors discuss inclusive education and how some students really benefitted from separate programs or even separate schools, while at other times students benefitted from opportunities in mainstream education (some even eliminating their special education status). In the schools, sometimes students have to choose between having certain accommodations and participating in other programs which may be just as influential in their success. These are the kinds of problems that cause barriers to some school systems. We, as professionals in the schools, need to find more ways to be flexible to enhance success for more students.

References

International Dyslexia Association. (2002). Definition of dyslexia. Retrieved from http://eida.org/definition-of-dyslexia/

Watson, L. L., & Vogel, L. R. (2017). Educational resiliency in teen mothers. *Cogent Education*, *4*. doi:10.1080/2331186X.2016.1276009

Yilmaz Findik, L. (2016). What makes a difference for resilient students in Turkey? *Eurasian Journal of Educational Research, 64*, 91-108. doi:10.14689/ejer.2016.64.5

_____

JENNIFER JOY is an Assistant Professor in the Counseling and School Psychology Department at the University of Nebraska at Kearney. She completed her doctoral degree in School Psychology with a minor in Statistics and Research Methods, and she then spent several years in the schools working as a school psychologist before teaching. In the schools, she served various special populations and special programs for students ranging in age from 2 to 21. Her research is focused on social competence, school readiness, play, mindfulness, and early literacy.