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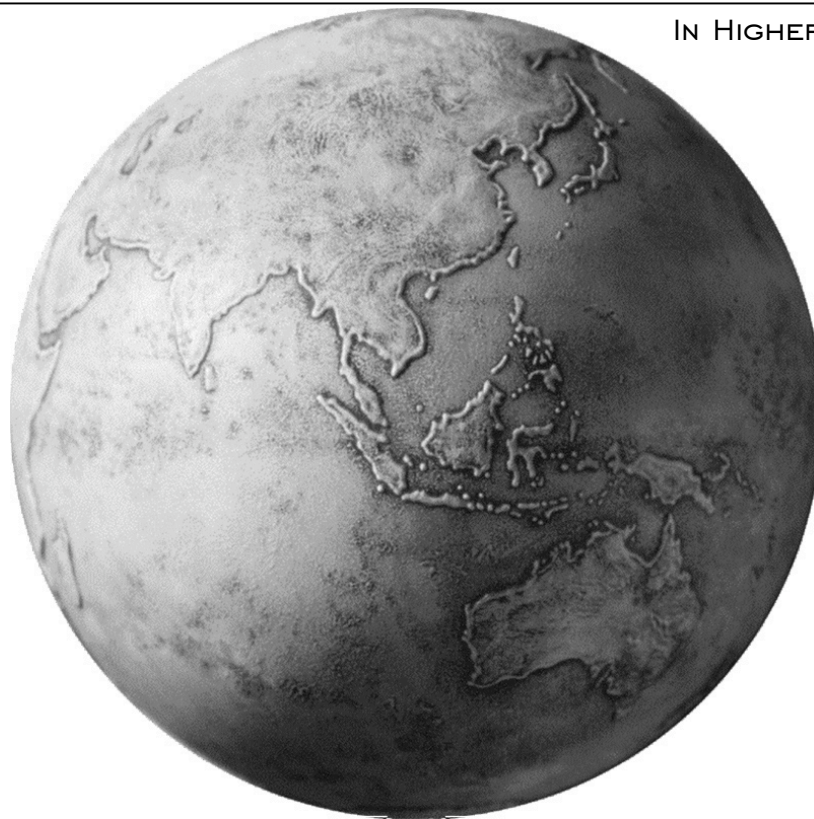
INTERNATIONAL JOURNAL OF

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# TEACHING & LEARNING

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IN HIGHER EDUCATION



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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.

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## Service Learning in Medical Education: Project Description and Evaluation

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Although medical education has long recognized the importance of community service, most medical schools have not formally nor fully incorporated service learning into their curricula. To address this problem, we describe the initial design, development, implementation, and evaluation of a service-learning project within a first-year medical school course. Medical students (eight women, eight men) screened clients of a community agency for high blood pressure and educated them about the effects of hypertension on health. Results of the project indicated significant increases in students' attitudes, knowledge, and skills related to community health, resources, and service. Infusing medical education with service-learning activities can both meet community needs and enhance student education about the health of the public. The present findings support continued development and evaluation of service-learning projects within medical school training programs.

Service rests at the core of the medical profession, which aspires to train physicians committed to improving the health of the community and serving the public (AAMC, 1998). Medical students often identify medicine's service orientation as a primary reason for choosing a career in medicine (Wagoner & Bridwell, 1989). Medical education is part of the higher education continuum, and, while service learning has long-standing pedagogical roots in K-12 and higher education, the integration of service learning into medical education has occurred in roughly the last decade. Generated by community-based higher educational initiatives, service learning in medical education has contributed to restructuring clinical education components of the curriculum as well as building partnerships between medical schools and the communities they serve.

Despite the benefits of service learning in health professions education (Seifer, 1998), the hidden curriculum effects of medical school training programs – in which students learn implicit rules, roles, and modes of conduct not taught in the formal curriculum – may, and often do, devalue students' orientation or commitment to service (Hafferty, 1998; Remen & Rabow, 2005). Hidden curriculum effects typically foster insensitivity, hardening, and numbing relative to patient care among medical students as they progress in the curriculum (Lowenstein, 2002). Additionally, although medical education has long recognized the importance of community service, most medical schools have not formally nor fully incorporated service learning into their curricula (Brush, Markert, & Lazarus, 2006; Burrows, Chauvin, Lazarus, & Chehardy, 1999). This further limits realizing the goal of helping medical students to fully appreciate and embody the very service ethic that underlies their chosen profession. To begin to address this problem, this paper describes the initial design, development,

implementation, and evaluation of a service-learning project within a first-year medical school course.

Service learning has been linked to developing attributes of altruism and dutifulness in medical students (Burrows et al., 1999). Participating in service learning also relates to more favorable academic outcomes such that students willing to participate in service learning are more likely to rank among the middle quartiles of their class (Brush et al., 2006). A strong service orientation may also predict student selection of a primary care specialty (Brush et al., 2006). This has implications for responding to the declining numbers of graduating medical students who enter primary care specialties (Newton & Grayson, 2003). Service learning has been shown to have benefits for students, such as increased interpersonal and communication skills, improved clinical skills, and heightened understanding of community issues (Burrows et al., 1999).

In recent years, the medical education literature has increasingly focused on community-based education (Seifer, 1998), community service (Elam et al., 2004), and service learning (Elam, Musick, Sauer, & Skelton, 2002). While service learning is considered a form of community-based education (Seifer, 1998), it extends traditional community service objectives by providing structured learning experiences with specific learning objectives related directly to student coursework. Medical education has long recognized the importance of medical students serving the community. However, service learning has not been formally nor fully acknowledged as part of the curriculum at most medical schools (Brush et al., 2006; Burrows et al., 1999).

Service learning has tremendous potential to enhance medical education because it allows students to apply the information they learn in the classroom to real-world settings and provide an important venue for

self-reflection. Service learning has the added potential benefit of addressing community-based problems in the context of the medical student's educational experience (Seifer, 1998) and may provide a mechanism for improving relations between medical schools and their surrounding communities. Students learn about the communities where their patients live by participating in service-learning activities and through this may gain a better understanding of community resources for their patients.

The implementation of service learning can take on different meanings and forms at medical schools across the country with varying priority levels and curricular emphases. Some medical schools have begun to revise their curricula to include a required service-learning component (Brush et al., 2006; Burrows et al., 1999). Other schools have begun to offer service-learning electives (Elam et al., 2002) or have a service-learning experience as an integral part of the curriculum (Seifer, 1998). This paper seeks to contribute to the growing body of literature that deals with service learning in medical education. Toward this end, we describe the initial design, development, implementation, and evaluation of a service-learning component within a medical school course. In line with evaluating the service-learning activity and determining outcomes at the beginning and at the end of the experience, we sought to explore the following overarching questions: Did participation in the service learning experience result in a change in the student's knowledge and understanding of health care and the community? Their attitudes and beliefs about service and health care? Their skills and future plans as physicians? We also identify future directions for integrating service learning into the medical school curriculum.

### Project Description and Evaluation

Concurrent with the shift to ambulatory- and community-based medical practice in the United States, medical schools have recognized increasingly the value of including clinical- and community-based experiences early on in students' training. These experiential activities endeavor to demonstrate and underscore linkages between basic science principles and clinical medicine practices. To realize these goals, a service-learning pilot project was implemented into an existing community-based, field experience course for first-year students at a medical school in the midwest. Entitled "Ambulatory Care Experience" (ACE), this course was first instituted in the medical school's curriculum in 2000 as a practical, community-based field experience (Hartung & Magoon, 2000). Seven day-long experiences provided learning opportunities for first-year students to enter the human side of medicine, experience diverse dimensions and contexts of human

development, enrich the links between basic science courses and clinical medicine, and explore career opportunities in medicine and the personal meaning of a life career as a physician. A fundamental tenet and goal of the ACE course was that first-year medical students would develop a keen understanding of, and direct appreciation for, the vital work that community agencies and programs perform and how students will, as physicians, partner with these agencies to care for patients. Since its inception, service has resided at the heart of ACE. In 2003, we formally instituted a service-learning component into the course.

As part of the original ACE course, groups of first-year medical students spent six hours helping to prepare and serve food to clients at community-based agencies. These agencies provided services, including daily free hot meals and emergency food supplies, to needy and underserved populations. The course objectives for these sites were designed for students to understand the backgrounds and values of the individuals served, the nature of the staff and services provided, client behavioral responses to the staff and students, and students' personal reactions to the experience. Student evaluations of their experiences at these sites indicated their need for more active involvement and engagement as medical students who could provide rudimentary clinical services. In response, the course directors agreed that the sites provided a valuable learning experience for students that could be significantly enhanced by engaging students in more active learning. A service-learning component of the ACE course, supported in part by a grant from the Center for Healthy Communities, was therefore developed to both enhance students' experiences and better serve the clientele of the community agencies.

### *Applying Service Learning to the Curriculum*

Given that the clientele at the community agencies do not receive routine medical care, a blood pressure screening component was developed and implemented as the service-learning component of the course. It is important from a medical education and training perspective that medical students learn how to take blood pressures. Service-learning opportunities provide the context for students to learn a skill and apply it in real world settings. Students' limited skill and knowledge levels necessitated training them in taking and interpreting blood pressure readings. Students learned how to measure blood pressure and how to provide appropriate education and follow-up care information to patients about hypertension. A faculty nurse preceptor on site instructed the students about how to take blood pressures and supervised the project.

The students alternated between two agencies on days when the ACE course was held. Students were

asked to reflect on their service learning by answering questions about their experiences and completing evaluation forms. With funds made available through the grant, the school purchased blood pressure cuffs, stethoscopes for students, and a teaching stethoscope, which allowed the preceptor and student to listen simultaneously. Additional teaching materials for the students included a primer on hypertension and educational brochures produced by the American Heart Association to be distributed to people with high blood pressure.

Students participated in this service-learning project for one year, with two to four medical students on site at the agencies four times during the 2003-2004 academic year. The students took clients' blood pressure readings, educated them about high blood pressure, and provided them with information about follow-up care. Students continued to perform their already assigned duties at the site, such as serving hot meals, in addition to having designated time for blood pressure screenings and education.

Students learn about high blood pressure as a health problem and learn about the human body in many aspects of their basic science courses. This service-learning component of the ACE course was expected to have additive value for students' education because they could meet a patient who has high blood pressure or is at risk for hypertension. It would allow the student to better understand the patient's perspective and ways in which the community impacts patient care. Because students interact with real patients, it was also expected that the service learning would help students to improve their communication skills, which are essential for quality patient care (AAMC, 1999). The objectives for the ACE course were consequently expanded to include the following objectives specific to service-learning.

#### *Service-Learning Goals and Objectives*

*Learning Need 1:* First-year medical students need clinical experience taking blood pressures.

*Service Rationale 1:* Disenfranchised groups of individuals who come to these agencies for a hot meal are unlikely to be receiving routine medical care and could, therefore, benefit from being screened for high blood pressure.

*Objective 1:* First-year medical students will screen the community agency clientele for high blood pressure.

*Learning Need 2:* As part of their first year medical school courses, students are taught communication skills. First-year medical students need to practice and develop their patient-communication skills.

*Service Rationale 2:* Clientele of the agencies can increase their knowledge about the risks of

hypertension by communicating with medical students. The interaction through communication can help facilitate access to medical care.

*Objective 2:* First-year medical students will use the communication skills they developed when interacting with clients.

The learning needs identified above are important to medical education. Medical students must learn specific skills, such as taking blood pressures, that are routinely part of the history and physical examination portion of office visits. While opportunities to learn and practice this skill are part of the traditional medical school curriculum, the addition of a service-learning component would allow students to work with individuals at risk for high blood pressure and who likely represent their future patients. The students would learn firsthand how disenfranchised groups of people may struggle with accessing medical care and the difficulties associated with managing chronic illnesses such as hypertension. The secondary gain expected for students through their service-learning component was the ability to practice and improve their communication skills. First-year medical students are taught the basics of medical interviewing typically with standardized patient actors and in academic rather than real-world settings. While the fundamental tenets of the ACE course sought to enhance student learning in the community context, these experiences did not always allow for patient contact and, specifically, for students to practice skills with an actual patient. The service-learning component was designed to address this problem.

#### *Establishing a Service-Learning Component*

The social service agencies involved in this project had been ACE sites for a number of years, and a formal link had been successfully established between the agencies' managers and the ACE coordinator. The agencies were knowledgeable about the objectives of ACE, skill levels and time availability of students, and evaluation expectations for student performance. These managers and the coordinator met to review the service-learning component for these ACE sites and to develop a schedule that reflected the integration of the service-learning component into the existing site activities.

#### *Participants and Measure*

A total of 16 first-year medical students (eight women, eight men) with a mean age of 21.6 years participated in the service-learning activity as part of the ACE course. Of these students, 11 were Caucasian and 5 were Asian. These students conducted blood pressure screenings on 107 individuals (51 males, 56 females). Sixty percent (60%) of clients screened

evidenced elevated blood pressure readings. To evaluate the activity and determine outcomes at the beginning and at the end of the experience, students responded to a pre- and post-test 32-item questionnaire developed by the granting agency. Likert scale responses ranged from 1 (*strongly agree*) to 7 (*strongly disagree*) for the first 15 questions, which comprised statements about students' attitudes and beliefs relative to the medical profession, health care, service to their patients and the community, and their future plans as physicians. For example, these statements asked about such things as providing care to people from different cultures, volunteering and community service, working on multidisciplinary teams, patients' health care beliefs/practices, etc. These statements afforded the opportunity for students to reflect critically on their experiences. As a central tenet of service learning, reflection provides a mechanism for students to make sense of their observations and experiences. Responses to the next set of eight questions with Likert scale responses ranging from 1 (*very willing*) to 7 (*very unwilling*) pertained to potential practice situations in which students would be willing to work after graduating (e.g., rural, urban or suburban setting, hospital, community clinic, and private practice). The remaining nine questions assessed students' knowledge and understanding of health care and the community before and after participating in the service-learning experience using a Likert scale from 1 (*no knowledge or understanding*) to 5 (*extensive knowledge or understanding*). Topics addressed by these statements included knowledge/understanding about barriers to health care, community resources, role of professionals on multidisciplinary teams, and health care needs of the community. Analyses were conducted using t-tests to compare students' responses before and after participating in the service-learning experience. The t-test allowed us to determine if significant differences existed between the students' pre- and post-test responses to the 32-item questionnaire. Significance levels were set at  $\alpha = .05$ .

### Results

Responses to items on the questionnaire were tabulated using a frequency analysis. Nearly 75% of students, after completing their service-learning experiences, indicated that they felt prepared to practice in a community similar to that of their project site. All 16 students indicated that they felt comfortable providing services to patients who were ethnically different from themselves. Approximately 87% of the students indicated that students should volunteer their time to the indigent, and 50% indicated that they would like to work in a setting where health professionals were underrepresented. Over 80% of the students

wanted to work with patients who represented a variety of cultural backgrounds, and about half of the students wanted to work as members of interdisciplinary teams. Pre- and post-survey results indicated that students, after participating in the service-learning experience, were slightly less likely to agree with the statement that health professionals should always try to incorporate the patient's health beliefs/practices when planning treatment ( $M_{pre} = 1.81$ ,  $M_{post} = 2.06$ ,  $t = -2.24$ ,  $p = .041$ ). No other significant differences were noted for statements about students' attitudes and beliefs relative to the medical profession, health care, service to their patients and the community, and their future plans as physicians.

Significant increases in knowledge or understanding were noted across eight of nine areas surveyed at pre- and post-testing (see Table 1). These eight areas included types of available community resources, impact of health-care delivery systems on working in the community, health-care needs of assigned communities, barriers to receiving health care, impact of socioeconomic status on health and illness, community perceptions of the site, methods of working with patients of varying levels of knowledge about health care, and meaning of the terms "community resources" and "community service." No significant increase resulted in knowledge or understanding about the responsibilities of other professionals in a multidisciplinary team. These findings suggest that participating in the service-learning experience resulted in an increase in knowledge and understanding in the majority of areas.

Students were asked about potential practice situations in which they would be willing to work after graduating. Options for their responses included working on a multidisciplinary team; in a community health clinic in a rural, urban, or suburban setting; in a private practice or hospital; or community service volunteering. Pre- and post-survey results were similar, therefore suggesting that the students' service-learning experiences did not significantly influence where they would be willing to work after graduating. Responses indicated that students would be more willing to work in a hospital and somewhat willing to work in a suburban setting before and after their service-learning experience.

To further evaluate the project outcomes, students responded to two qualitative questions as part of the questionnaire. With regard to the question, "Do you feel you acquired new skills or enhanced existing skills as a result of this experience?," of the 13 students who responded, two students indicated that they did not acquire new skills and commented, "It was basically the same as all the other community service work that I have been doing since the ninth grade" and "I had previously used these skills effectively." The remaining

TABLE 1  
Comparison of Pre-Test and Post-Test Mean Scores

	Pre-Test		Post-Test		<i>t</i>	<i>p</i>
	Mean	SD	Mean	SD		
Community resources	2.44	.727	3.38	.500	-4.86*	.000
Impact of health care delivery system on working in the community	2.63	.719	3.00	.966	-3.00*	.009
Health care needs of communities	2.25	.683	3.38	.885	-6.26*	.000
Barriers to receiving health care	2.81	.750	3.38	1.03	-3.09*	.007
Impact of socioeconomic status on health and illness	3.25	.856	3.94	.854	-4.57*	.000
Community perceptions of site	2.06	1.18	3.06	1.24	-3.04*	.008
Working with patients of varying levels of knowledge about health care	2.94	1.06	3.63	.806	-2.91*	.011
Meaning of terms "community resources" and "community service"	3.31	1.02	3.75	.856	-2.78*	.014
Responsibilities of other professionals in a multidisciplinary team	2.44	.964	2.63	1.03	-1.86	.083

\*  $p < .05$ .

11 students indicated that the experience helped them to improve their blood pressure assessment skills. Replies from students included comments about learning to take blood pressures, such as, "...the actual measuring taught me the technique," and also about additional benefits of their experience, such as, "I got better at working with people and taking blood pressures," and, "I learned to take blood pressures and better understand the health-care needs of the medically indigent."

With regard to the question, "Do you think that you gained unique knowledge from this clinical/training experience?," three of the 11 students who responded said "no." The remaining eight said "yes," and a few students elaborated with such comments as the following: "It gives a real-life perspective on aging and health care," of "...dealing with actual people...getting comfortable talking to them," and, "Every time I practice a medical skill I feel like I learned much more than simply sitting in class." Additional replies included, "Learning is always better for me with a clinical training experience, because you integrate book knowledge, practical applications, and communication," and, "It is much easier to learn this type of activity by doing, not by having someone tell you how to do it." The following comment was also made: "[An] applied component helps to crystallize knowledge. It is hard to tell if I learned much unique knowledge because I had a good understanding of this type of site before."

## Discussion

The majority of students who participated in the initial implementation of a medical school service-learning project reported benefits. The service-learning objectives were achieved. The integration of a service-learning component into a medical school course embodied the basic principles of service learning by addressing a community concern and involving the community partners in addressing the need. Service learning also enhanced students' learning by extending what they learn in the classroom to real-world situations and to understand better the context and situations of their future patients.

Students' knowledge and understanding were broadened, and increases were noted in the areas relevant to patient care and to community resources and services. Additionally, students' comments pertained to the value of service learning, such as the importance of practical applications of clinical training and learning skills in real world settings compared to classroom learning. Changes in students' attitudes and skills relating to health care and the community were also noted upon completion of their service-learning experience. The vast majority of students indicated that they had acquired a new skill as a result of their service-learning experience or that the experience helped them to improve their skills at taking blood pressures. As students reflected on their service-



learning experience, their comments indicated that they felt prepared to practice in communities similar to their project site and recognized the importance of working with patients from diverse backgrounds. The students indicated that volunteering their time to the indigent was important. The design of this study, unfortunately, does not allow us to determine to what extent the students' service-learning experiences contributed to their views on volunteerism. Further investigations in this area are needed.

Overall, the results of this project indicated that the service-learning experience seemed more likely to impact students' knowledge and understanding rather than attitudes and behaviors or future practice plans. Given that the service-learning experience was approximately one day in length, it is possible that knowledge and understanding can be increased during that time period. Longer and possibly repeated exposure to sites may be required to impact the more deeply ingrained attitudes and behaviors of students. The same may be true regarding students' plans after graduation. The service-learning experience did not appear to influence students' preferences for where to practice in the future. Given the brevity of their service-learning experience, this is not surprising. Students may need extended and varied exposure to service learning for it to be able to significantly impact their decisions about their future practice of medicine. Given that these were first-year medical students, it is possible that further in their training (i.e., during the second or third year of medical school) these service learning experiences could differently impact their thoughts on working in different environments. Future studies in this area may want to explore the impact of level of training on service-learning outcomes. Additionally, length and repeated exposure of a service-learning experience should also be studied as it relates to outcomes.

Few medical educators probably doubt the importance or benefit of service learning for medical students or the schools' community partners. Medical schools are faced, however, with the challenge of determining how to integrate service learning into an already densely packed curriculum. Given that it is unlikely that there is room in the curriculum for additional courses, it seems more reasonable for schools to consider options for integrating service learning into pre-existing courses. In this light, service learning can be viewed as an extension of a course and possibly offer a more complete learning experience for the students. Opportunities for service learning experiences in medical schools are plentiful regardless of whether they are elective or required components of the curriculum.

With regard to future directions for service learning at our institution, the major initiative in which our medical school embarked to transform its medical

education program yielded an "Integrated Steps" curricular model structured around "five Cs" of medicine: Communication, Competence, Caring, Character, and Community. The innovated model entailed a basic shift from separate, disciplinary-based courses to integrated, interdisciplinary-based courses delivered in five blocks over four years with bridges linking each step. Central to this curriculum is a longitudinal, four-year-long course entitled "Doctoring" that includes a service component. Service is one of the themes of the course with the explicit goal that students will embody an ethic of service to society and to their profession. The service theme focuses on helping the medical students answer the question, "How can I serve?" Each student is expected to complete four hours of service commitment per month during each academic year throughout the five-step curriculum. For the purposes of this course, this service is defined as *work that aims to benefit needy, underserved, and/or vulnerable people or populations*. Students are free to choose any service opportunity within this definition. Medical school staff and faculty will work with students to identify service-learning objectives specific to their site. Student and site evaluations will be conducted.

As many medical schools position themselves to reinvigorate and transform their curricula, service learning seems to offer a viable component for inclusion. Although constrained by a very small sample size which may limit generalizability, the present findings suggest that service-learning requirements should be formally implemented into the curriculum. Although a "gold standard" for service learning in medical schools has not yet been established, it is hoped that progress will be made as medical schools work to better prepare students for the practice of medicine.

As medical education continues to contribute to the higher education of individuals bound for the service professions, medical schools should strive to find ways to align their institutional missions with service-learning initiatives. Institutions of higher education outside of medicine have paved the way for service learning to be an integral part of the education of their students, and it is time for medical schools to follow suit.

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## Educating the Business Graduate of the 21st Century: Communication for a Globalized World

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This article examines current business communication education in higher education, particularly in regard to English as a global language. The discussion is situated at the intersection of business communication, intercultural communication, and internationalization of higher education, and the article draws on research from all three fields. The article questions why not enough use is being made of existing cultural diversity in university classrooms, and it suggests a variety of pedagogical strategies which will enable teachers to build on the cultural and linguistic strengths of their students to develop intercultural communication competence. These new directions for intercultural business communication will equip business graduates to operate successfully in a globalized world.

This paper examines current business communication education at higher education, particularly in regard to the use of “English as a global language” (Crystal, 1997). The discussion draws on the findings of two case studies undertaken for doctoral research (Briguglio, 2005), which identified some quite specific skills in regard to the use of English as a global language for a business context. One case study was based on observation in two multinational companies and the other on research undertaken with a class of undergraduate business students. The analysis of the language practices in two multinational companies, one in Malaysia and the other in Hong Kong, provided insights into the way “global English” is used and identified the sorts of intercultural communication skills graduates would need to operate successfully in such contexts. The case study undertaken with a typical business class in an Australian higher education institution sought to establish whether students were developing the identified intercultural communication skills in the course of their studies. This case study showed that while students are equipped with quite sound knowledge of cultural and linguistic matters, they may not have the necessary intercultural communication skills to enable them to work effectively in multinational teams. The student case study also showed that deliberate intervention to raise awareness of cultural and linguistic issues can be effective in developing students’ intercultural communication skills.

This article draws a link between business communication, intercultural communication, and internationalization of higher education. The article will briefly examine the effects of globalization and internationalization in education, and it will discuss how they might impact on future business communication education at the higher education level. More particularly, it will indicate directions for intercultural business communication, which, coupled

with other abilities and attributes, will enable business graduates to operate successfully in a globalized world.

### Globalization and Internationalization of Higher Education

Maidstone (in Whalley et al. 1997) identifies the trends of internationalization and globalization impacting on Canada as follows:

- the emergence of a global political economy and a new international division of labor;
- the greater global interdependency with regard to political, environmental and social issues and problems;
- the reconfiguring of international relations and new definitions of global security that have developed with the end of the cold war; and
- the substantial demographic changes in Canada and other Western industrialized societies resulting from changing patterns of immigration. (p. 5)

Maidstone makes it clear that these trends are universal, and therefore their influence is inescapable.

In the context of higher education, Altbach (2004) defines globalization as “the broad economic, technological and scientific trends that directly affect higher education and are largely inevitable. Politics and culture are also part of the new global realities” (p. 3). Altbach reminds us that globalization in regard to universities is not something new. Indeed, the earliest universities (Bologna, Paris, and others) were very much “global institutions” serving an international clientele and functioning with a common language, Latin, and with professors from many countries (Altbach, 2004). Altbach points out that globalization cannot be completely avoided if universities are to remain relevant. Internationalization, in the context of

higher education, includes “the specific policies and programs undertaken [by universities] to cope with or exploit globalization” (Altbach, 2004, p. 3). Knight (1999) indicates there is some slippage in the way the two terms are used to refer to higher education. She distinguishes between them by stating that “global” refers to “education which involves the whole world and relates to world issues”, whereas “international” refers to “education which involves/relates to the people, cultures and systems of different nations” (p. 27). Knight argues that internationalization implies respect for, and understanding of, differences and similarities between and among nations, whereas globalization probably does not. In higher education, as in trade, globalization can bring access, but, as Altbach (2004, 2005) warns, it can also reinforce existing inequalities. Both Altbach (2004) and Knight (1999) point out that the providers of international education are largely Western developed countries which deliver education, most commonly in the English language, and from a “Western” perspective:

Now, multinational corporations, media conglomerates, and even a few leading universities can be seen as the new neocolonists – seeking to dominate not for ideological or political reasons, but rather for commercial gain (Altbach, 2004, p. 6).

Altbach (2004, 2005) also reminds us that, historically, academe has always been international in scope (and characterized by inequalities), and the strong globalization thrust merely makes it impossible to resist internationalization. What we need to do, he suggests, is to recognize inequalities and then try to overcome them “in order to ensure that globalization does not turn into the neo-colonialism of the 21<sup>st</sup> century” (Altbach, 2004, p. 18). Other researchers in the field of internationalization have also offered similar cautions (Haigh, 2003; Jackson, 2003; Van Damme, 2001).

Internationalization is conceived and defined in various ways. Trevaskes, Eisenchelas and Liddicoat (2003) differentiate between weak and strong perceptions of internationalization, with the first showing a superficial engagement with the concept (and perhaps more concern for the marketing of education to international students) and the latter a much deeper understanding and exploration of the concept, with the emphasis on internationalization of curriculum. Stier (2004) also informs us that internationalization is perceived by some as a *state* of things, by others as a *process*, and by others still as a *doctrine*, with these approaches reflecting very different motivations. Although many Australian universities have incorporated internationalization policies which would reflect strong perceptions of internationalization

as a transforming policy for all those engaged in teaching and learning, the truth, say Trevaskes et al. (2003), is that in many cases the rhetoric far outweighs reality. Trevaskes et al. (2003) feel that Australian universities have merely acknowledged the presence of large numbers of international students on local campuses but have not utilized this phenomenon to develop “a culturally literate, interculturally capable society in Australia” (p. 10). However, Australia is not alone in finding rhetoric easier than implementation. A world-wide survey of internationalization by the International Association of Universities (a UNESCO backed body) in 2003 found, among other things, that “while two thirds of the institutions appear to have an internationalization policy/strategy in place, only about half of these institutions have budgets and a monitoring framework to support the implementation” (Knight, 2004, p. 4). The survey also found that internationalization is largely driven by faculty – that is, those academic staff members who are committed to making a difference – rather than initiatives coming centrally from university leaders.

### *Internationalization of Curriculum*

Internationalized curricula have been defined as:

Curricula with an international orientation in content, aimed at preparing students for performing (professionally/socially) in an international and multicultural context, and designed for domestic students as well as foreign students (OECD, 1994, p. 7).

The typology suggested by the OECD (1994) covers formal and informal curriculum and includes the following categories:

- curricula with an international subject;
- curricula in which the traditional area is broadened by a comparative approach;
- curricula which prepare students for defined international professions;
- curricula in foreign language or linguistics which address cross-communication issues and provide training in intercultural skills;
- interdisciplinary programs covering more than one country;
- curricula leading to internationally recognized professional qualifications;
- curricula leading to joint double degrees;
- curricula in which compulsory parts are offered abroad; and
- curricula in which the content is specifically designed for foreign students. (p. 7)

Although this definition and typology are now more than ten years old, some would claim that very little progress has been made in that time. The disappointment with the failure of universities to truly internationalize curricula is fairly common not only in Australia (Eisenchelas et al., 2003; Liddicoat, 2003; Nesdale & Todd, 1997; Smart, Volet, & Ang, 2000; Trevaskes et al., 2003), but also in the United States (Hayward, 2000) and elsewhere (Stier, 2004). And yet if we compare present university curricula to those of ten years ago, we might find that, at least on the surface, some things have changed. For example, more units carry “international” in their title, and this usually reflects some change in content to include international perspectives (Briguglio, 1999). However, deep level changes that would equip graduates with intercultural communication competencies would require awareness of language issues across the curriculum. Such changes would be tackled more effectively at the broader university level through the development of language policies integrated with internationalization policies, thus providing a more coherent framework for developments across the curriculum.

A number of universities around the world already have language policies. For example, the policies of Stellenbosch University (2004) and Cardiff University (2005) relate to the rights of minorities; others, such as those at Lingnan University Hong Kong (2000) and the university policies of the European Union (European Language Council, 2001), are tied more closely to political and strategic, as well as identity, issues; others, such as Curtin’s (2004) “Language of Instruction Policy,” aim to clarify language of instruction issues, particularly for offshore campuses; and still others, such as those of Monash University (2002) and Wollongong University (2005), are more broadly related to curriculum. The Monash University “Language Policy,” in particular, seems very far-sighted, promoting the sort of student development that is advocated in this paper, and offering a good example for other universities:

In adopting a University Language Policy, Monash University recognizes the centrality of language in academic, professional and social life, the rich linguistic resources available within the institution, and the language needs generated by globalization. (Monash University, 2005)

Of course, the development of clear and far-sighted policies is only a first step, with implementation often proving more challenging.

### *Internationalization and Graduate Attributes*

Recent moves in articulating and developing graduate attributes may be another way to foster internationalization, since the graduate attributes that are indicated for the future often overlap with those that will/can be developed through internationalization of the curriculum. As Barrie (2004) states, “[G]raduate attributes sit at a vital intersection of many of the forces shaping higher education today” (p. 263).

Graduate attributes (also variously called graduate qualities, generic skills, generic attributes, core skills, and core capabilities) are those skills and qualities that we expect students to have developed through undertaking their degree. This topic has attracted much attention in the last 20 years or so, with many universities all over the world formulating statements of graduate attributes they aim to develop in their students, and even attempts internationally to develop international standards (Knight, 1999). These developments have led to discussion about the sort of knowledge, skills, and abilities that students will require to function professionally and socially in future scenarios, among them, of course, the world of business. The debate seems to move between two major orientations: an instrumental/economic orientation, which argues that university education should prepare graduates for the workforce; and a more liberal orientation, which posits that undergraduates need to be prepared to contribute more broadly to cultural and social development, including their own personal development. Candy (1994), in his study of lifelong learning, takes the view that not only are these orientations not mutually exclusive, but indeed both are necessary for continuing learning throughout life.

Barrie and Prosser (2004) and Barnett (2004) state that we are educating students for an extremely uncertain future. One could argue that the future is always uncertain, but, as Barnett (2004) states, the current unprecedented *pace* of change, “its character, its intensity [and] its felt impact,” make the situation at the beginning of the 21<sup>st</sup> century somewhat different (p. 248). Barnett thus expresses the need for a curriculum that will prepare students for “supercomplexity.” Barrie (2004) describes a recent process adopted at the University of Sydney to establish and implement a set of graduate attributes. The three “holistic” overarching attributes which staff identified were scholarship, global citizenship, and lifelong learning. And although the number and variety of graduate attributes developed by universities may differ, the theme of preparing students for operating in global scenarios is seen repeatedly in higher education literature, with competencies in intercultural communication a priority.

Whalley et al. (1997) refer to a new set of skills that graduates of the future will require which are variously referred to as international literacy, international consciousness, global awareness, or a global perspective. Sadiki (2001) states that we should aim for a curriculum that will develop a form of global citizenship and will prepare its recipients everywhere for global community. Knight (1999), who undertook several studies in Canada, found that respondents from education, government and the private sector all agreed that the number one rationale of importance for higher education was “to prepare students and scholars who are internationally knowledgeable and interculturally competent” (p. 13).

In short, the impact of globalization and internationalization has placed global citizenship capabilities at the forefront of graduate attributes. Nowhere is this more evident than in relation to business graduates. Knight (1999), for example, states:

The globalized marketplace and economy have resulted in increased interest and opportunities for graduates to be employed by multinational companies. This requires that the higher education sector be prepared to provide relevant training and education to ensure that graduates are well prepared to work in a more globalized economy even if the majority of them may never leave their home country to work. (p. 5)

In this sort of context, intercultural skills, and particularly intercultural communication skills, are at the core of a university education for the 21st century:

The preparation of graduates who have a strong knowledge and skill base in intercultural relations and communications is considered by many academics as one of the strongest rationales for internationalising the teaching/learning experience of students in undergraduate and graduate programs (Knight, 1999, p. 17).

Altbach (2004, 2005) reminds us, however, that the (fairly young) field of business and management studies is particularly dominated by American perspectives and that even the literature in intercultural business studies has tended to be presented largely through American/Western eyes. If we really want to prepare graduates for work in multinational settings, we would do well to eschew many of the ready-made materials and simplistic courses for intercultural development and concentrate on more carefully considered processes. As Stier (2004) indicates, “Intercultural competence is not something that is easily accessible or achievable by using a manual [...], but requires the hand of time and a vast personal investment” (p. 87).

### Implications of Data Obtained from Two Recent Case Studies

A study undertaken by the author in 2004 (Briguglio, 2005) explored the use of English as a global language in two multinational companies, one a cargo inspection company in Malaysia and the other a producer of a famous American soft drink brand in Hong Kong. An ethnographic approach, combining both qualitative and quantitative data-gathering techniques, was employed. An analysis of the language practices helped to identify the English and intercultural communication skills that business graduates will require to operate successfully in such multinational contexts. Among the skills that were found to be important were: the use of English for email communication; greater tolerance for and accommodation of the different accents and varieties of English; the ability to write informal reports in English; development of both oral and written communication skills in English to high levels; and the ability to work collaboratively with people from different national, cultural, and linguistic backgrounds. More importantly, the case study highlighted the need for employees in multinational companies to develop *interpretability* as well as *intelligibility* skills (Candlin, 1982) in global English. That is, in the world of business communication, where the dominance of English as global language is undisputed (Crystal, 1997; Graddol, 2006), even if regretted by some (Pennycook, 1998; Phillipson, 1992), the responsibility for successful communication lies not only with second language speakers of English to make themselves understood (intelligibility) but also with first language speakers to develop skills for interpreting different accents and varieties of world English (interpretability).

The same study also included a case study with a “typical” business class in an Australian higher education institution, in order to gauge whether students were developing the communication skills identified in the two multinational contexts described above in the course of their studies. This case study showed that more needs to be done to develop in students the communication skills they will require to participate confidently in international business contexts and, more particularly, to operate effectively in multinational/multicultural teams. Both case studies highlighted the fact that future business communication education needs to:

- provide deliberate, structured intervention to help students to acquire interpersonal communication skills for multicultural/multinational settings and for working in multicultural/multinational teams;

- have a greater focus on teaching and learning processes that will develop student attributes, skills, and competencies in the above areas, rather than simply on content; and
- aim to develop interpretability skills as well as intelligibility skills in intercultural communication, thus placing the responsibility for successful intercultural communication on *all* students, be they first or second language speakers of English.

It is not enough for students to have knowledge and awareness of cultural and linguistic issues (useful though these may be). Students need to be involved in teaching and learning processes which engage them and develop them. As Barnett (2004) states:

Learning for an unknown future cannot be accomplished by the acquisition of either knowledge or skills [but rather] certain kinds of human qualities. They are qualities such as carefulness, thoughtfulness, humility, criticality, receptiveness, resilience, courage and stillness. The pedagogical journey [for engaging students as persons and not merely as “knowers”] will be one of encountering strangeness, of wrestling with it, and forming one’s own responses to it. (p. 257-259)

Barnett could well be describing the journey to acquiring intercultural competence, for Scollon and Scollon (1995) give us very similar advice:

We conclude with what might seem a paradoxical concept, that is, that the professional [intercultural] communicator is the one who has come to realize his or her lack of expertise....Intercultural professional communication requires outgroup communication in which one is never likely to take on full group membership and expertise....A person who understands the outlines of the pattern of differences and commonalities, but fully recognizes his or her own lack of membership and state of non-expertise, is likely to be the most successful and effective communicator. (p. 252)

#### Future Directions for Business Education

It would appear, therefore, that there is much scope for universities to implement strategies which will equip business graduates to operate confidently in a global context. Business education will need to take students on a journey which will make them more self-reflexive about their own learning and develop their capacities. This will mean, above all else, that teaching

staff need to focus on teaching and learning processes which will promote this sort of student development (Leask, 1999; Liddicoat, 2003). The following suggestions, then, are made particularly with the classroom and teaching and learning in mind, and with the emphasis on intercultural communication skills. They refer less to content changes and additions, which may need to be made to some units/courses, and more to teaching and learning processes that can be incorporated into aspects of a business course. They can be introduced simultaneously or gradually, depending on the receptiveness, enthusiasm and energy of teaching staff and the resources that academic leaders are prepared to infuse into such developments.

Curriculum internationalization initiatives for business students, with the particular aim of developing intercultural competence, could include one-off or one-time, carefully structured components, such as teaching a special unit in “Intercultural communication for global business.” In an ongoing way, however, higher education business courses should include structured intervention processes (Smart et al., 2000; Volet & Ang 1998), which should extend across the curriculum to raise student awareness of intercultural and linguistic issues, and teaching and learning processes, which can enhance student capacity to communicate interculturally, particularly in multinational groups/teams (Roberts et al., 2001). Teaching and learning strategies needed to prepare business graduates for the 21<sup>st</sup> century will require greater attention than they have attracted in the past. Initiatives such as the following would do much to promote the learning goals espoused above:

- a unit in “Intercultural communication for global business” or similar;
- carefully structured and managed student group work;
- development and careful use of international business case studies (with greater input into the curriculum from students themselves);
- facilitation of electronic communication between students in different countries/contexts; and, most importantly
- a classroom pedagogy which allows students to develop interpersonal/ intercultural communication competencies.

Initiatives such as these, implemented systematically across a business Faculty, School or course, would do much to promote the sorts of graduate attributes discussed above. These initiatives are explained more fully below.

*A Unit in Intercultural Communication for Global Business*

Teaching a compulsory foundation unit to all students would be a reasonably easy option, in that a single unit is far easier to implement than some of the other strategies suggested. However, a unit by itself has its limitations, nor is it a simple matter to determine the sort of content and processes that such a unit might embrace. Nevertheless, such a unit might cover at least some of the following areas:

- expectations for oral and written communication in the tertiary context;
- a “grammar of discourse” for a major variety of English (or of the variety of the country where the course is being undertaken);
- aspects of university discourse;
- aspects of business discourse;
- varieties of English dialects or “world Englishes”;
- the rise of English as a global language;
- the concept of culture;
- aspects of cultural, organizational, gender, professional, generational, and other discourses;
- issues in cross-cultural communication; and
- business negotiation in cross-cultural contexts.

Most importantly, the teaching/learning *processes* used in such a unit would be just as important as the content. Such a unit would make extensive use of seminars, class and small group discussion, group work in mixed cultural groups, case studies based on cross-cultural issues, and tasks that would require students to probe each other’s cultural perspectives. This sort of approach seems to be reflected, for example, in a B.A. in English for International Business (Global) offered by the University of Central Lancashire (2003), which lists typical classroom activities for a unit in English for International Communication as follows:

- structured discussions, simulations and case studies;
- problem-solving and decision-making tasks;
- text and video-based analysis of international and regional varieties of English and their use in international communication;
- guided project work leading to portfolio tasks;
- presentations and seminars based on individual research; and

- input, practice, and feedback focused on language and communication skills.

In such a unit, care would need to be taken to ensure that all cultural perspectives are valued, so that international students’ cultural knowledge is seen as valid and expert and not merely acknowledged in a superficial way. For example, students could be asked to research some aspect of “world Englishes” in such ways that the many international students become the experts.

Crosling and Martin (2005) point out that students need to be clearly informed of the purposes of various activities in order to maximize their learning. For example, it is too easy from a first language speaker’s perspective to perceive that international students “have an accent”. However, if students are made to realize that everybody has an accent of one sort or another, and that in multinational contexts, they will have to deal with a number of accents in English, then all students might make more effort to acquire greater *interpretability* skills. In other words, the classroom opportunity to engage in intercultural communication, with all its difficulties and complexity, should be welcomed as valuable experience that will enhance one’s intercultural communication skills, for as one student put it when interviewed about the multinational student teams case study: “[T]his is like a small portion of the real world; this is like a small introduction” (Briguglio, 2005, p. 159). And real or realistic exemplars of varieties of English for analysis, including the language of business scenarios, could be obtained through the media. Such texts would provide a rich source of authentic material that could be analysed and would no doubt have much more impact than information in books, which, well intentioned though they might be, tend to have their limitations.

In implementing such a unit, issues to be addressed would include: whether the unit should be a core or elective unit; devising teaching and learning activities to enhance the development of interpersonal/intercultural communication skills, which are not normally assessed, nor are they easy to assess; and determining who should teach such a unit: staff with business qualifications, or those with linguistic expertise, or (in an ideal world) both? Certainly many of the strategies described above would seem to require at least some knowledge and understanding of applied linguistics, with which those teaching business communication in Europe would seem to be better equipped than those in similar teaching situations in America and Australia, for example, for, as Bargiela-Chiappini (2004) indicates, intercultural business communication in Europe represents a more “language-centred approach to interculturality” (p. 33).



### *Carefully Structured Student Group Work*

Many group or team projects and assignments are undertaken in business studies. However, instead of providing an excellent opportunity for deep learning, group experiences can, in some cases, build resentment and unhappiness among students (Caspersz et al., 2002; De Vita, 2001; Volet & Ang, 1998). We know that there is very little mixing between local and international students on Australian campuses and indeed on U.K. and U.S. campuses. This separation seems to continue to a large extent within university classrooms. Smart et al. (2000) and Volet and Ang (1998) found that, if students were left to their own devices, very little would change. They advocate, as do Crosling and Martin (2005), a deliberate interventionist approach to encourage both local and international students to learn from each other. However, too often students are asked to form their own teams and are not given much preparation for working in groups. De Vita (2001), too, reports that when group work is used as a quick and easy solution to assessment without adequate preparation of students, the results can be bad group experiences.

This is unfortunate, because student multinational teams present the greatest opportunity for students to acquire significant cultural learning from each other (Caspersz et al., 2004; Crosling & Martin, 2005). The student case study undertaken by the author (Briguglio, 2005) showed that students are very well disposed to learning about other cultures and acquiring deeper cultural understanding. Our Australian classrooms, certainly in the business faculties, which provide around 46% of international students on Australian campuses (DEST, 2004), have enough cultural diversity to provide the ideal laboratories for authentic cultural and linguistic learning. We have seen, too, that future graduates need to be able to deal with different varieties of English and different accents. Indeed, Alptekin (2002) proposes that “a new notion of communicative competence is needed, one which recognizes English as a world language [encompassing] local and international contexts as settings of language use” (p. 57). Well-structured group work offers students the possibility to become more familiar with world Englishes and competent in dealing with different accents. Offshore campuses and programs also offer the possibility for virtual multinational teams, for which electronic chat sites provide students with the possibility to also improve their intercultural email skills.

Caspersz et al. (2005) stress that student teams need to be well-managed for the best results. They propose a holistic approach encompassing six principles that academic staff should follow in order to obtain the best results from student teams. These principles

include integrating the team project into unit curricula, preparing students for team work, generating team members’ commitment, monitoring team progress, managing fairness in teams, and managing cultural and linguistic diversity.

However, care will need to be taken to convince students that the extra effort required to work in multinational teams is worth it, because students have also indicated their natural tendency to form groups with those with whom they feel more comfortable, usually people from similar cultural backgrounds. Volet and Ang (1998) found that even when students had a positive experience in a culturally mixed group they expressed a preference for returning to homogenous groups which they felt required less effort. So staff need to be very explicit with students about the reasons for organizing culturally mixed groups and the sort of learning they promote. Students might then be more prepared to make the extra effort required if the benefits are made explicit (Crosling & Martin, 2005). Indeed, students have expressed to the author (Briguglio, 2000) that, left to their own devices, they will often go for the soft option, which is to culturally homogenous teams. They do, however, want to gain the benefits of culturally mixed teams and want staff to “force” them into such teams (Briguglio, 2000; Smart et al., 2000). And some (particularly postgraduate) students are aware that working in mixed teams on projects is also beneficial academically, allowing students to learn from different perspectives and different (cultural) points of view:

I like the teamwork as well. We sometimes have an assignment as a team, four or five people. I think it’s one of the best points. Because to be understood and to understand at all, you have to speak, just to convince others. You have to express your opinions, you can’t be shy and not say anything. And when you meet people from another culture, overseas people – I mean from Indonesia or even France – they have a very different way of thinking. It’s a good way to learn about another culture. They feel, they react in a different way (international postgraduate student, in Briguglio, 1998).

Thus teams need to be structured so that they are culturally/linguistically mixed and carefully managed by teaching staff to ensure the best learning results. Some of the management steps and strategies could then involve:

- explicitly informing the students of the learning objectives and reasons for culturally mixed teams, pointing out the learning

advantages and also some of the difficulties that may be encountered;

- implementing an initial workshop to raise awareness of language and cultural issues early in the piece;
- having each student develop an assessable journal, which records the group's progress and interactions, as well as cultural and linguistic observations (to encourage reflection);
- monitoring the progress of groups, in terms of group member contributions to the set group project; and
- having students develop a portfolio containing written and/or audio and/or visual media "texts" illustrating particular cultural and linguistic aspects relevant to intercultural/business discourse.

With staff intervention to form structured groups, careful selection of team members, preparation of students to work in multinational teams, and the development of challenging tasks and processes that allow students to learn from each other's cultural perspectives, group work can produce wonderful results and prepare students for working in real multicultural settings. As Crosling and Martin (2005) remind us:

Collaborative learning activities have the potential to foster both students' and teaching staff members' intercultural and international literacy [and to] promote intercultural communicative competency and critical thinking abilities for the global workplace. (p. 11)

#### *Development and Use of International Business Case Studies*

In business studies, the case study is a very common teaching and learning tool and presents a good opportunity for designing appropriate teaching and learning tasks. Many commercially produced materials already exist, but, as indicated above, there is the problem that many such materials are developed from a Western perspective. Such texts recognize difference, but only in relation to the assumed centrality of dominant cultures. They tend to want to train the Western "we" to learn about the cultural values and business practices of other countries relevant to them (the "they") in a bid to gain a business advantage (Munshi & McKie, 2001). We have seen, on the other hand, that true competence in intercultural communication will allow people to view things from diverse perspectives, all equally valid once a single dominant cultural position is removed. Munshi and McKie (2001) avoided the pitfalls in their business

communication course by employing a critical pedagogy: this included using both mainstream and alternative readings (from literature, as well as business) that allowed students to develop a critical perspective, and analysis and discussion of students' own experience of crossing cultural borders.

Alternatively, students themselves can develop case studies. Commercially produced case studies could serve as a starting point, and then students could be asked to adapt the case study from their own cultural perspective. Also, students could be asked to work in their "national group" to develop case studies that reflect their cultural perspectives. Case studies could then be pooled so that students in the class address the issues from different cultural perspectives. Students could also work in multinational teams to produce original case studies based on cultural dilemmas and problems that they themselves have experienced, and teams can be asked to adapt them to a business context. The complexity that students are likely to meet in the real world is already existent in many classrooms, which form a microcosm of the real world. Unfortunately, in most cases, such diversity is ignored and even resented by some staff and students as an impediment to learning, when in reality, it could, and should be, the very opposite – a font of real intercultural discovery.

A case study based on the research with multinational companies undertaken by the author (Briguglio, 2005) might be designed as follows:

You are a middle level manager who heads up a small team that is part of a multinational drink company with subsidiaries in Asia. The head office of the multinational company is in the USA, and your company is based in Hong Kong. Some of the top representatives from the American head office (as well as others from subsidiaries in Germany and Spain) will be visiting your HK company for a week to discuss progress over the last two years and to develop a strategic plan for the future. Your section has the responsibility of organizing the meetings as well as social functions that are required for the planning week. What factors will you need to take into consideration in order to organize a successful week for all concerned?

This sort of case study does not have a neat solution; there is no one correct answer that will solve all the inherent problems. The open-ended scenario it proposes is useful because if students are placed in culturally mixed groups to discuss this case study, they will be forced to address, amongst other things: the cultural dilemmas that might arise in the above scenario, the misunderstandings that might arise due to the use of English as a *lingua franca*, the expectations that

different groups may have for the meeting, different meeting procedures that might be expected, how different groups might view work and socializing, what would be considered polite and appropriate behavior by different participants, what language issues might arise, and what “face” considerations may need to be taken into account. Feedback from groups after addressing this sort of case study would also bring up a rich array of issues that can be pooled and discussed with the whole class in order to build on students’ cultural knowledge and understanding.

#### *Facilitation of Electronic Communication Between Students*

The multinational companies case study (Briguglio, 2005) highlighted the fact that English was used most in email communication. As well, email is likely to become, according to some, the dominant interpersonal communication medium in the new millennium (Waldvogel, 2001), “approaching if not overshadowing voice” (Negroponte, 1995, p. 191). Moreover, many firms, now aware of the importance of email to their business, are investing money in teaching their employees how to write (Waldvogel, 2001). It would be advisable, therefore, to develop students’ email skills to high levels.

Apart from formal teaching about email communication in business communication courses, other strategies can be used to develop students’ skills. Email communication could be built into units, for example, as part of teamwork projects or for class chat sites, with the lecturer, with outside clients, and so on, so that students come to understand levels of formality and informality required for different types of email communication and acquire necessary email protocols.

However, email communication needs to be taught and assessed in order for students to take it seriously. The belief that “anyone can do it” simply because it is easy technically ignores the fact that email communication requires quite sophisticated understanding and writing skills in order for people to communicate effectively and sensitively. As Waldvogel (2001) states: “[B]ecause email communication lacks many of the cues present in other communicative forms it is open to wide interpretation. Where it is used indiscriminately and without the discipline and thought that goes into other forms of written messages, it can generate bad feeling and result in ineffective communication” (p. 9). Moreover, because the need for cultural adjustments may be less obvious in long-distance communication, email can increase the potential for intercultural misunderstandings (Gundling, 1999). For all these reasons, then, it is important for email communication to be encouraged, but also to be

taught and assessed, as an integral part of business courses.

#### *A Classroom Pedagogy That Promotes Development of Interpersonal/ Intercultural Competency*

Often the inclusion of content relating to other countries/cultures represents what is understood by internationalization of curriculum in many universities. However, as Smart, Volet and Ang (2000) state:

While such content reform at program level is beneficial...it is likely to be in the area of instructional methods and classroom intercultural interaction that the most promising innovations will emerge. (p. 37)

Several authors (Cheney, 2001; Eisenchelas & Trevaskes, 2003; Smart et al., 2000; Volet & Ang, 1998) recommend an emphasis on structured intervention processes in teaching and learning as well as the provision of experiential learning for students. As Eisenchelas and Trevaskes (2003) state, “[I]nternationalization is a process that impacts on the whole individual, and thus we need to look at cognitive and affective factors” (p. 87). Since it has been argued in this chapter that intercultural communication, in particular, is the aspect of internationalization that should be most strongly promoted for business students, it follows that processes which enhance interaction among the already existent diverse student populations in our classrooms are those that should be strongly promoted.

Bell (2001) suggests a number of processes involving pair work that can involve students from different cultural backgrounds over an extended period (at least for the duration of a unit of study) to acquire deep cultural learning. Bell mentions, for example, a “live” case study in which two students over a semester are asked to research each other’s cultural backgrounds and relate what they learn to cultural theories they have studied; or field trips into the wider (multicultural) community where one student interacts with different members of the public (say shop assistants) while the other observes differences in behavior, particularly linguistic behavior; or involving students in paired activities which enable both parties to examine their own cultural biases, beliefs, and values. Students could also record and analyze each other’s “ways of speaking” for a linguistic analysis of different ways of “making meaning.”

Crosling and Martin (2005) suggest utilizing student diversity fully for collaborative learning in which students become active participants in the teaching and learning process rather than just passive

recipients. They advocate, among other things, creating mandatory culturally mixed groups and informing students of the reasons for this, providing activities that will allow students to reflect on different learning styles and how culture affects the way we process and use information, making students aware of the problems inherent in multicultural interactions, encouraging students to reflect on the group processes in which they engage, and making clear to students the purpose and function of group tasks.

The School of Design at Curtin University of Technology has used some of these techniques in a pair work project, and the results have been truly impressive (Smart et al., 2000). In one assignment, for example, students from different cultural backgrounds work in pairs, and each in turn acts as client and designer. Over a semester students must probe each other's cultural background in order for the designer to design a poster for a particular event that will please the client and be in tune with that client's cultural expectations. Apart from the poster, the assessment also includes diary entries describing what each student has learned about the other's culture. What is particularly valuable about this sort of task is the fact that it carries over a whole semester, involves students exploring each other's cultural values and tastes, has students reflecting on what they have learned, allows students to adapt their design product to please the client, and channels them into developing a design that is a blend of their own ideas and those of another cultural perspective. Another example in the School of Information Systems at Curtin University of Technology has students plan all aspects of a wedding, as it would be carried out in their country of origin. This brings up all sorts of cultural dilemmas and differences, and students learn much more than abstract theory from this project. Similar tasks could be developed and adapted for other business courses.

A broader cross-cultural input into the curriculum can come from students themselves. International students have sometimes complained that in Australian classrooms they are not presented with opportunities to discuss previous experiences and knowledge that relate to their own country. Swiss students, for example, were surprised that in a finance unit, their opinions were not sought on the banking system in their country (Briguglio, 2001). Eisenchelas and Trevaskes (2003) argue that an ethos of internationalization and interculturality should pervade our classrooms "as a process through which individual students or groups learn better to communicate their aspirations, values and attitudes in inter-group situations. This process of communication can occur at the level of less formal one-on-one interactions, or more formal classroom interactions" (p. 89).

The above processes imply extensive dialogue in (and outside) the classroom among students and among

teachers and students. Such processes require classrooms that are living laboratories in which students question issues from a number of perspectives, exchange opinions freely, negotiate meaning, confront and deal generally with difference, grow aware that they are sometimes interacting in English as a global language, and discuss and analyze cultural differences. The student multinational teams case study showed that students are interested in discussing such issues; the classroom atmosphere simply needs to be conducive to allow this to happen. One common complaint from teaching staff is that international students, at least undergraduates, are reluctant to speak out in class. While some may find speaking out in class a daunting prospect (Briguglio, 2000), the multinational student groups case study showed that students are more than willing to discuss such issues in pairs or in small groups. If the classroom atmosphere is conducive to such practices, then students will surely acquire more confidence over time. Moreover, this is the sort of language (the informal language of everyday interaction) that they will require for future operation in multinational/multicultural business teams and contexts (Crosling & Ward, 2001).

### Conclusion

This paper has examined the current preparation of business graduates in higher education. Undergraduate business education has been discussed in the context of globalization forces in higher education and, more specifically, in regard to the trend of internationalization of curriculum, which has become more pronounced in the last 15 years or so. The other major impact on undergraduate business education has come from a growing emphasis on learning outcomes or graduate attributes that university courses are expected to develop in students. Both internationalization of curriculum and the move to graduate attributes highlight the fact that intercultural competencies will be crucial, not only for business graduates, but for all graduates in future. The multinational companies case study undertaken by the author (Briguglio 2005) indicated that in the business sphere, intercultural communication skills will be increasingly necessary for success. Although the importance of knowing other languages is by no means diminished, the ability to communicate interculturality in English would seem to be a requirement for success in the future world of business. This paper has discussed some ways in which more carefully considered teaching and learning processes, in particular those informed by applied linguistics, can assist the development of business graduates who will be more culturally sensitive and able to operate in international/ intercultural contexts. There is much

scope for further research in applications and evaluations of classroom pedagogy which will allow students to develop strong intercultural communication skills and greater understanding of cultural and linguistic issues involved in successful intercultural communication.

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## Enhancing the Scholarship of Teaching and Learning: Evaluation of a Scheme to Improve Teaching and Learning Through Action Research

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This paper reports on evaluation of a scheme to improve University teaching through action research over a five-year period in the science, engineering, and technology division of a large Australian dual sector University. Between 2002 to 2006 this scheme directly committed approximately A\$210,000 in grants and involved over 130 teaching and other staff in sponsoring projects of up to eight months' duration, with a total of 34 projects completed. Evaluation was informed by the desire of the academic developers concerned with the scheme to engage more widely with staff in predominantly empirical disciplinary cultures, to be more accountable within a University business management paradigm, and to contribute to the scholarship of academic development. The paper provides evidence – in terms of quality, effectiveness, practicality, participation, and satisfaction – to show how this scheme enhanced the scholarship of teaching and learning in the University. The paper outlines issues encountered and further work to be done in undertaking evaluation of such a scheme.

This paper reports on evaluation of a scheme to improve University teaching through action research over a five-year period, in the science, engineering, and technology division of a large Australian dual sector University. Between 2002 to 2006 this scheme directly committed approximately A\$210,000 in grants and involved over 130 teaching and other staff in sponsoring projects of up to eight months' duration, with a total of 34 projects completed. Evaluation was informed by the desire of the academic developers concerned with the scheme to engage more widely with staff in predominantly empirical disciplinary cultures, to be more accountable within a University business management paradigm, and to contribute to the scholarship of academic development. The paper provides evidence – in terms of quality, effectiveness, practicality, participation, and satisfaction – to show how this scheme enhanced the scholarship of teaching and learning in the University. The paper outlines issues encountered and further work to be done in undertaking evaluation of such a scheme.

### Description of the Scheme

Action Research in Teaching and Learning (ARTL) was an initiative to enhance the quality of teaching and learning at a large Australian dual sector University by supporting staff to take an action research approach to improve some aspect of their teaching. ARTL was offered in one-third of the University, the Science, Engineering and Technology Portfolio (one of only three conglomerate faculties), which comprised ten Schools on two main campuses, had around 1,200 full-time equivalent teaching staff, and represented one-third of the University's technical/vocational (TAFE),

undergraduate (UG), and postgraduate coursework (PG-C) teaching programs. It was piloted in the Life Sciences disciplines during 2002-2003, and then was scaled up across all of Science, Engineering, and Technology in 2004-2006. It was part of a suite of activities carried out by the Portfolio academic development group (or work unit) to implement the University's teaching and learning strategy. It was offered to staff in only these disciplines because the Science, Engineering, and Technology academic development group operates within a de-centralized model to support only those staff.

ARTL provided competitive small grants to staff within a structured framework of project management and professional development firmly focused on the scholarship of teaching and learning. Eligibility extended to all staff involved in teaching or supporting teaching, including staff in full-time, part-time, and casual positions on campus and in community or work-based settings. Key conditions of the guidelines for applicants are shown in Table 1.

From 2002 to 2006 ARTL committed in total approximately A\$210,000 in grants and involved over 130 staff participants from every eligible Department or School, working with students in 35 different courses and programs of study. It sponsored five rounds of projects, each up to eight months in duration, with 34 projects completed at the time of writing. Projects investigated topics such as student assessment, problem-based learning, graduate capabilities, and teaching and learning with technology.

ARTL began as an initiative – modeled initially on a scheme previously conducted at another University as described in Radloff, de la Harpe and Wright (2000) – to build and strengthen a shared culture of reflective



TABLE 1  
Key Conditions of 2005 ARTL Guidelines for Applicants

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Projects are intended to allow staff to plan an improvement through change in their teaching practice, implement the change, collect data about the change, analyze the data, and report back in a scholarly manner.

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The objectives are to provide academic and teaching staff in the Portfolio with the opportunities to:

- Research real-world issues and practices in their teaching to improve student learning and student satisfaction;
- Learn to use or improve the use of action research methodology for this purpose; and
- Build a research profile by preparing an article for publication in a refereed academic journal

For the Portfolio and the University, the scheme aims to:

- Provide a framework for continuing professional development in teaching;
- Develop and foster the scholarship of teaching and learning; and
- Support progress towards targets for teaching quality improvement.

The scheme aims to enhance teaching and learning in the Portfolio by strengthening priority areas such as:

- Good teaching, as reflected by indicators such as national surveys;
  - Student development of graduate capabilities;
  - Student progression and completion rates; and
  - Graduate employment / self-employment / enterprise formation.
- 

Project proposals should:

- Be developed on the basis of sources of evidence such as formal student feedback or key performance; indicator data, or current issues in teaching & learning literature—and make these clear in the application
  - Address an important problem or issue where the solution will:
    - Benefit students in large classes or cohorts and/or
    - Be shared by more than one course and/or
    - Impact on more than one program;
  - Apply to teaching in a course conducted by staff employed by the Portfolio;
  - Achieve a result within eight months and an outcome into the future;
  - Propose a team rather than one member of staff— teams may be drawn from course or program teams, and may also include interdisciplinary and cross-sector members; and
  - Be consistent with work planning of the School/s where project participants are based.
- 

Proposed projects should focus on at least one of the following priorities:

- Improving approaches to assessment;
  - Enhancing student leadership capabilities;
  - Strengthening work-integrated learning;
  - Internationalising the curriculum;
  - Innovating in teaching and learning with technologies; and
  - Strengthening student transition.
- 

and scholarly practice in teaching. Its approach was to offer professional development that recognized disciplinary cultures and ways of knowing, and that was situated in the everyday work of teaching. Its operation was resourced in three main ways: direct funding support for projects, staff time invested by project teams, and coordination and management overheads (half of the year-round workload of a full-time middle-level academic developer, under direction).

Project funding amounts were modest by the standards of “big research” (from A\$1,000 in 2002 up to A\$5,000, A\$8,000, A\$10,000 per project in 2003, 2004, 2005 respectively), and funding was disbursed against milestones committed to by successful applicants which included requirements to: attend a methodology workshop, (re)develop a project design, draft and submit an ethics application, conduct the action research project with students and the staff team,

submit one-page written progress reports monthly, work collaboratively with a project mentor with at least monthly contact, present at two project progress seminars and the annual portfolio teaching and learning forum, and submit an article for publication and an evaluation of the project experience.

Among the many schemes and many approaches to funding research into teaching in higher education, ARTL had a number of distinguishing features relating to the provision of structured end-to-end support and professional development for participants. This was intended to improve outcomes from the schemes in four ways: by fostering research into teaching among staff with little or no previous experience of it, by including targets and indicators for teaching and measurable scholarly outputs for research, by increasing access to professional learning and development on many levels in the University and

its community, and by securing the engagement of a wide range of stakeholders.

#### An Action Research Approach

Action research is well established as an approach to practitioner research, and is located in a phenomenological and interpretive paradigm (Zuber-Skerritt 2003). In ARTL, action research was selected to assist academic staff who typically were formally trained in natural and physical science research methods, but less experienced in methods suited to researching their teaching practice. Action research was selected as it is characterized by: investigating a complex, real-world question; reflecting on participants' professional practice; using cycles of action and critical reflection; often using qualitative data, although quantitative data can be used; and developing a solution to a specific situation, rather than a causal explanation (Dick & Swepson 1997; Zuber-Skerritt 2003). A significant body of literature supports the use of action research in this context (see for example, Cherry 2002; Kember 1998, 2002).

#### A Framework for Evaluation

ARTL was designed to be conducted within a framework of continuous evaluation and improvement, so regular review of this scheme was an integral part of the reflective practice of the academic developers who sponsored it. But even though coordination and support provided through the scheme, as refined progressively over the five year period, seemed to be set at an effective level to achieve stated aims, continued operation of this scheme needed to be evaluated more formally. Academic development units are more than ever subject to the forces of restructuring and the demands to engage with a range of stakeholders, including client groups, senior administrators, and the profession (Gray & Radloff, 2005).

Evaluation of ARTL sought to address the situation described by Walshe (2002), wherein several factors are slowing the development of new knowledge in the education sector: the opportunity to conduct educational experiments is limited, most of the practical knowledge remains tacit, and much of the innovation doesn't connect with formal research or get disseminated. Opportunities for staff to undertake research on teaching and learning are limited given the competitive nature of higher education and the emphasis on disciplinary research as a measure of institutional quality and international standing. In addition, success in research leads to peer recognition and academic advancement. There is thus both pressure and incentive for staff to engage in discipline-based

research rather than in research into the pedagogy of their discipline.

Further, given the traditional view of teaching as a private activity involving what Shulman (1993) calls "pedagogical solitude," there is little opportunity or incentive for University teachers to share knowledge and experience gained through their educational practice. Such sharing is also limited by a lack a common language of teaching and learning. Moreover, many academics do not have experience in evaluating, documenting, and disseminating educational practice in ways that are perceived as scholarly and conforming to traditional research paradigms.

The decision to evaluate ARTL in depth was informed by the desire of the academic development unit for stronger understanding among stakeholders in the academic disciplines, clearer accountability within the University's business management framework, and more substantial contribution to the scholarship of academic development.

However, an approach to evaluation was not straightforward. As McLoughlin and Samuels (2002) have outlined, underlying any evaluation of interventions to improve teaching are at least four educational discourses, or ways of framing the very meaning and purpose of improving teaching. One is a discourse about reflective practice, which involves critical examination of current practice, and becoming a reflective practitioner through self-evaluation of one's teaching skills, attitudes, and conceptions of teaching and learning. Another is about the interdependence of teaching and (educational) research, such that research findings should inform and improve the practice of, and be meaningful and accessible to, practitioners whose main discipline is not education. Another focuses on inquiries into student learning, particularly influenced by phenomenographical research. Finally, there is the discourse about teaching as a form of scholarship that requires higher education teachers to be well informed about educational research, to be self-reflective and committed to improving student learning, and to be investigative and communicative about teaching.

As well, as McAlpine and Harris (2002) have outlined, there are multiple forms of practice that need to be considered in evaluating teaching improvement, including subject matter expertise, design skills, delivery skills, management skills, skills in mentoring learners, personal professional development practices, and organizational development practices. The evaluation of ARTL sought to factor in ideas of worth that would accommodate a range of stakeholder perspectives and constructs of teaching practice.

For such reasons, strict "value for money" or "return on investment" performance auditing – that is, evaluation in terms of economy (the acquisition of

resources on the best possible terms), efficiency (the use of resources to achieve a given level of output), and effectiveness (the match between intentions and outcomes) – seemed unsatisfactory for evaluating a scheme such as ARTL, for, as Elliott (2002) has noted, such an approach could have undesirable outcomes such as: possible erosion of academics' motivation to innovate and of trust in academics' capabilities; shifting of focus onto readily observable outputs, rather than on chain-of-effect outcomes; and failure to capture time-dependent and context-bound aspects of improvement.

The framework ultimately chosen as most appropriate to analyze and report on academic developers' observations about the value and worth of the ARTL scheme was adapted from the criteria established by the Australian Awards for University Teaching (AAUT) to recognize and reward excellence in institutional efforts to enhance the quality of teaching and learning (see The Carrick Institute, 2005). These criteria framed the work and outcomes of the scheme in a way that would make it possible to capture the various discourses, multiple practices, and organizational performance issues within the broader work of enhancing the quality of teaching and learning; they were endorsed by a peak national body, the Australian Universities Teaching Committee, and thus were validated externally to the academic development unit and the University itself; and the ARTL scheme was eligible to be considered for recognition within them. Specifically, the AAUT criteria address the extent to which an institutional project or initiative practices the following:

- facilitates quality practice;
- assists staff to be more effective;
- is innovative and practical;
- achieves participation/penetration; and
- achieves client satisfaction.

The following five sections of this paper report on evaluation carried out by the academic developers concerned, using the AAUT criteria to conduct a systematic longitudinal review of documented ARTL operation.

#### Extent to Which ARTL Facilitated Quality Practice

Kember (2002) describes the dilemma in facilitating an action research scheme:

There was a desire for the project teams to retain ownership of their projects and to conduct all aspects themselves. The participants would

therefore be motivated and would learn from the experience. At the same time, though, sufficient assistance, advice and support needed to be provided to ensure that the projects were successfully conducted, and achieved their aims. (p. 89-90)

A distinguishing feature of ARTL was its provision of structured end-to-end support and professional development for participants to facilitate quality outcomes from the scheme, illustrated here through its project management, mentoring, brokering, and advocacy work.

#### *Project Management*

ARTL took a strong project management approach to the organization, management and coordination of the scheme, with the coordinator undertaking the following tasks:

- plan and promote annual round and take inquiries;
- advise on development of applications and receive applications;
- coordinate selection process including panel;
- coordinate expedited ethics application process;
- monitor monthly team progress reports and budgets;
- process casual staff employment and other accounts;
- run methodology workshop and progress seminar for teams;
- induct and support mentors;
- events-manage day-long end-of-year forum based on project presentations;
- support guest speakers and panelists to present at workshops and forums; and
- produce monthly management reports.

#### *Mentoring*

ARTL introduced a formal mentoring system for project teams. Mentors were staff experienced in educational research or educational development, but removed from the administration of the scheme and with no authorship role in writing up the project; they acted as critical friends to the project team. They engaged in such activities as coaching the project team in effective teaching and learning interventions, helping the team to reflect on their experiences, and undertaking preliminary review of planned presentations or publications about the projects.

### *Brokering*

ARTL facilitated the work of teams by brokering assistance from third party support service providers across the University as the need arose, for example by the following actions: negotiating appropriate media production services for research into the use of virtual field trips, sourcing IT services technical solutions to support research into student e-portfolios, and mediating where misunderstandings arose during third party support.

### *Advocacy*

ARTL undertook advocacy on behalf of teams regarding University policies and procedures in sometimes unexpected areas; for example, ARTL assisted in streamlining and interpreting the human ethics approval processes to capture the circumstances of practitioner research into teaching, and it assisted in clarifying processes for recruitment and appointment of casual research assistants in research-into-teaching settings.

#### Extent to Which ARTL Assisted Staff to be More Effective

ARTL specifically aimed to strengthen a culture of the scholarship or research into teaching. Diamond (2002) highlights competing notions of scholarship, arguing:

For the greater part of the twentieth century, most professors paid little attention to defining the term “scholarship” or to addressing what was meant by “scholarly work.” Most individuals and disciplines bought into the concept growing out of the sciences that to be scholarly an activity needed to be “original” research that led to publication as a book or an article in one of the

more significant discipline-based, refereed journals....The impact of this approach, while seldom mentioned publicly, was at times extremely unfortunate not only for individual faculty members but also for the disciplines themselves. (p. 73)

ARTL fostered research into teaching among staff who may have had little or no previous experience of educational research, or of a team-based or action-oriented approach to educational research, in several key respects.

### *Shifting Research Paradigms*

Staff in science, engineering, and technology disciplines more than often have developed their academic practice within a quantitative or empirical research paradigm. In contrast to this positivist research tradition, action research is typically quasi-experimental, usually uses qualitative methodologies, is conducted in naturalistic settings, and does not usually provide causal explanations, but rather is focused on obtaining valid data that is “rich, real and deep” (Dick & Swepson, 1997). Further, the notion of reflecting on practice is not generally well understood or routinely applied in higher education (Davis, 2003). To pursue change and knowledge together through action and reflection on the action was, therefore, a new way of working as researchers for most staff who participated in ARTL.

### *Inclusiveness*

ARTL contributed to the professional development of diverse staff, as shown in Table 2, including early and mid-career academics, and also groups for whom continuing professional development in teaching is not always accessible: general staff, sessional staff, and graduate students.

TABLE 2  
Analysis of Participating Staff in ARTL 2002-2005

	Professor	Associate Professor	Holding PhD	Higher Ed academics not fitting into previous categories	Technical and Further Education (TAFE) teaching staff	General staff
2002	0	2	8	6	1	1
2003	0	5	3	6	0	0
2004	0	3	17	7	7	8
2005	3	4	12	11	3	2
Total	3	14	40	30	11	11

*Note.* General staff includes educational designers, library staff, IT support staff, and student support staff

### *Legitimizing Research into Teaching and Learning*

ARTL provided staff with a way to be formally recognized for their classroom research. It was used by participants in building teaching portfolios, applying for academic promotion, and nominating for teaching awards. The trend in 2005 for more participation by staff at professorial level gave added weight and prestige to involvement with the scheme generally. As well, participation by senior academics improved the opportunities for peer learning in ARTL workshop settings where these staff contributed their more extensive experiences as teachers and researchers.

### *Conversing Across Disciplines*

The science, engineering, and technology division of the University comprised a range of disciplines – from aerospace engineering through cartography and complementary medicine to foundation studies – across which academic and professional discourse often struggled. Through the ARTL scheme, project teams who were workshopping applications, testing new practices, and interpreting student feedback found common cause and shared learning about teaching in a spirit not seen in many other University settings.

In practice, the opportunities for conversing across the disciplines arose in workshop situations – specifically designed along an adult learning model in which participants were encouraged to support each other by sharing their understandings and professional expertise – and from 2005 forward, through an online discussion forum for ARTL project teams. This resulted in a community of practice, with projects enriched by professorial level staff from other projects sharing literature and insights, and mid-career staff who were more familiar with action research approaches having input into others' projects.

### *Extent to Which ARTL was Innovative and Practical*

ARTL contributed to a range of outcomes for an academic development unit that strove to operate within a framework of strong accountability and transparency to accomplish the following:

- achieve institutional missions;
- implement institutional strategic plans;
- enhance student and staff experiences;
- improve overall student and staff satisfaction; and
- enhance student learning and research outcomes (see Blackmore et al., 2004).

ARTL brought together within sponsored projects both strategic targets and indicators for teaching

performance, as well as measurable scholarly outputs for research. It heightened awareness of the ethics of teaching, and it delivered economies of scale for supporting research into teaching.

### *Strategic Focus*

The design of ARTL reflected University performance targets and high-level indicators for teaching and for research. Guidelines for projects (as shown in Table 1), including priority areas for action research, were cross-referenced closely to the detailed objectives in the University's teaching and learning strategy.

### *Scholarly Outputs*

ARTL participation committed staff to engage actively with the educational research community through reporting on their projects in refereed forums. Participants were supported to review relevant literature, draft publishable papers, and identify appropriate disciplinary or generic educational presentation and publication opportunities. National and international dissemination of ARTL projects is known to have occurred in the form of conference presentations or journal articles – at least seven in 2002, six in 2003 and eight in 2005.

### *Ethical Stance to Working with Students*

The coordination of ARTL projects in 2002-2003 identified scope for improvement in ethical practices around research into teaching, in particular regarding efficacy and protection of student learning (balancing the desire to improve teaching practice with the risk of adversely affecting student learning), informed consent and voluntary participation, vulnerability and unequal power relationships, and intellectual property and collegiality. As a result, all 2004-2006 participants were briefed on ethical issues in working with students, and they sought and obtained formal human ethics approval for their projects, as described in more detail in Chang, Gray, Polus and Radloff (2005).

Long lead times and a lengthy application form based on bio-medical research were identified as potential barriers to ARTL participants applying for human ethics approval. This led to academic development group staff working collaboratively with the human ethics committee to introduce an expedited human ethics approval process for ARTL projects from 2005 and to pilot a simplified 5-page ethics application form for research into teaching practice in 2006. These practical innovations have had influence beyond the ARTL scheme; for example, the simplified application form will be rolled out across the University.

### *Economies of Scale*

Finding the time to do research into teaching is a pressing issue for most academic staff. Project teams typically used their ARTL funding for employing a research assistant, paying for efficient ways to collect and analyze data, and employing sessional staff to allow partial time release from teaching. However, all such expenditure was disbursed, and all casual staff were employed, by the ARTL coordinator on behalf of project teams in order to reduce the administrative overheads of research into teaching and thus to enable teaching staff to focus on core aspects of their projects. This approach to administration of the projects maximized the opportunity for a large number of staff to spend time on non-trivial professional learning and development activities.

### *Extent of ARTL Participation and Penetration*

Participants in action learning typically experience a range of benefits including, as Bournier, Cooper and France (2000) enumerate, their own personal think-tank, a sounding board for testing out their ideas, traction and motivation to make progress, set-aside time and space for reflection, vicarious learning, active learning, and self-help group work. Beaty (2003) observes, "[B]ecause it is project focused, action learning can have wider benefits to the University as well as personal benefits for staff" (p. 16). Taking account of all these factors, ARTL made professional learning and development accessible on many levels including to project staff teams and their students, to wider staff audiences in University operating units and at University forums, and to the wider community through public dissemination.

### *Direct Involvement of Staff*

Applying for an ARTL project attracted increasing interest from staff each year, as shown in Table 3. Improvements to the application process in 2005 obviated the need for full applications through an

improved system for handling informal enquiries. Unsuccessful applicants received feedback on their applications and advice on other potential avenues to seek support. Over the five years of ARTL operation, successful projects were sited in every eligible Department / School.

### *Dissemination Within the University and Beyond*

ARTL and project outcomes have been disseminated in a number of ways. ARTL culminated in a major teaching and learning forum at the end of each year of operation. Attendance at each of the 2002 and 2003 forums was over 50, and in 2004 and 2005 it was over 100. Selected projects were the focus of presentations to staff at whole-of-University events such as teaching and learning seminars and research seminars. ARTL coordinating staff presented papers about aspects of the project to national or international academic development conferences in 2003, 2004 and 2005. In addition, a number of papers have been published. Finally, an ARTL website was made publicly accessible at <http://www.rmit.edu.au/set/ad/sotl/artl>.

### *Other Organizational Learning and Development*

ARTL contributed to learning and development in the University, over and above that of project teams and their students, in a number of other ways. Project mentoring introduced formally in 2004-2005 gave at least 10 non-project-team staff the opportunity to develop and refine mentoring skills. Further, working partnerships and relationships with teaching staff were strengthened in response to the needs of the scheme, including among University curriculum developers, librarians, field or clinical supervisors, and employer advisory groups. The scheme also led to wider adoption and application of some innovations in practice, for example, student e-portfolios, internet videoconferencing, peer tutoring, and electronic journal clubs were piloted in ARTL projects and subsequently taken up in other courses and programs.

TABLE 3  
Direct Interest and Participation in ARTL 2002-2005

	Expressions of interest	Successful teams
2002	8 applications	18 staff from 4/5 Departments / Schools
2003	15 applications	14 staff from 4/5 Departments / Schools
2004	29 applications	42 staff from 10/10 Schools
2005	50 enquiries and 14 applications	35 staff from 9/10 Schools

### Degree of Client Satisfaction with ARTL

ARTL showed evidence of addressing and meeting the needs of different stakeholders in the scholarship of teaching, that is, not only project participants, but also students and University management. Westin and McAlpine (2001) propose that there is “a continuum of growth toward the scholarship of teaching that highlights the possibility of growth or development within and across three phases...growth in own teaching, dialogue with colleagues about teaching and learning, and growth in scholarship of teaching” (p. 96-97). ARTL project participants reported satisfaction that reflects these three phases of growth. A sample of feedback from project participants is given here:

#### *Impact on Staff*

Twelve participants who did a formal evaluation of the 2002-2003 ARTL schemes (reported in Jansz-Senn, Chang, Gray, De Pew & Radloff, 2003) considered that the scheme had improved:

- the quality of teaching and learning in more than one program (7/12);
- their understanding and undertaking of collaborations to improve teaching (8/12);
- their knowledge and / or practices of assessing students (9/12); and
- their ability to be more reflective in their teaching practice (10/12).

Comments from 2004 participants include:

- “I experienced much value and benefit simply by completing the ARTL application process.” (team leader)
- “My discussions with [the ARTL coordinator] were very helpful, and I found her very accommodating to assist in whatever way was possible. Also some good suggestions from her about how to proceed with some aspects of the proposal that I was concerned about.” (applicant)
- “You are to be congratulated on the way the afternoon was organised and conducted... I learnt a great deal as a result of the workshop particularly around the issue of ethics.” (mentor)

#### *Impact on Students*

ARTL project reports conveyed an array of insights by staff into student learning and student satisfaction as the following comments illustrate:

- “It was also found to be important to contextualize the e-portfolios within the overall program experienced by the student, and it was apparent that effective team teaching is necessary in order that students gain the full benefit of their portfolio creation skills in subsequent years of their program.” (Allan, Zylinski, Temple, Hislop, & Gray, 2003, p.579)
- “preliminary studies into the effectiveness of a teaching method designed to encourage students to pose their own questions as an assignment task...provide considerable feedback on the progress and / or engagement of students with the material.” (Merchant & McGregor, 2004, p.1)
- “Focus group comments showed a wide variety of opinion about the two methods, suggesting that any one method of teaching will put some students at a disadvantage. This indicates that a varied approach to ... teaching is desirable because it is more likely to catch the interest and attention of a wider number of students.” (Henry, Salter, Quazi, Bezen, Flynn & Kaul, 2004, p.1)

#### *Institutional Recognition*

The ARTL scheme was unique and much admired within the University. It received a University award in 2005 for its innovative and practical approach to the enhancement of the quality of teaching and learning, and it was nominated to represent the University in the national Australian Awards for University Teaching competition in this category.

#### *Further Considerations*

Findings about ARTL in relation to the five criteria above may offer lessons for good practice in supporting the scholarship of teaching. They also represent a significant effort to use evidence to assert the worth and value of this type of academic development work. However, in this respect there is still more work to be done, in order to make explicit what didn't work or couldn't be shown about the scheme, triangulate the evaluation done by scheme participants and administrators, and drive further evaluation and proper follow-up action.

#### *Unknowns*

One of the least successful aspects of ARTL was that, in a dual-sector setting where greater mutual exchange between technical/vocational (TAFE)

educators and higher educators was an institutional goal, TAFE staff participation in ARTL was proportionately less, and less successful, than higher education staff participation. It is not clear why this was the case, but it is possible that this is a reflection of differences in the staff development and research contexts of the two sectors (which have separate performance measures and career structures overseen by different levels of government) that the ARTL scheme alone could not overcome.

One of the great unanswerable issues about ARTL concerned the opportunity cost of participation in it that was borne by participating staff. Especially in the eyes of teaching staff and their academic managers, ARTL often seemed to compete for scarce time and attention with other priorities such as discipline-based research, academic administration, and curriculum renewal, as well as other staff development needs and options. The actual time commitment of a participating staff member was “as long as a piece of string,” variable from one project and one team member to another, and not feasible to calculate as total person-hours.

For the academic developers involved in ARTL, evaluation raised a long line of questioning about what is proper professional conduct in terms of academic developers’ affiliations with staff action research projects, e.g., in what circumstances could one be on the selection panel, could one be a team member, could one say that some of the ARTL data belonged to him or her? Some of the issues of academic integrity, intellectual property and research ethics are detailed in Chang, Gray, Polus, and Radloff (2005). Questions also persisted about what might be the best location within the University for the sponsorship of such a scheme in order to optimize engagement by “academic tribes” at the same time as reaping cross-disciplinary benefits.

### *Triangulation*

ARTL was designed to be conducted within a framework of continuous evaluation and improvement. Triangulation provides data from multiple sources that can be used for evaluation purposes. In the case of ARTL, to date the sources of data used to evaluate the project have included the academic developers who designed and implemented ARTL and other staff involved in implementing ARTL, the staff who undertook ARTL projects and, in some instances, their students who were participants in projects, as well as peers who contributed to ARTL projects in different ways, including as mentors and reviewers. It is possible to understand and further strengthen the evaluation of ARTL by using Kember’s (1998) model for triangulated evaluation of an action learning project in a tertiary setting, which maps onto Guskey’s (1999) taxonomy for evaluating professional development. In

Kember’s (1998) model, academic developers design and monitor the overall scheme (planning evaluation), teaching teams reflect on and report on progress within their own projects (formative evaluation), and independent formal evaluation is commissioned (summative evaluation).

Specifically in ARTL, planning evaluation can be understood to have adequately occurred through the way that the ARTL coordinator captured and worked with a variety of data such as progressive feedback and debriefings by applicants (successful or not), workshop participants, mentors; project staging and budget reports reviewed by Portfolio managers; broader staff participation rates and comments from learning and teaching forums annually; and referees’ and colleagues’ external reviews of written and presented accounts of the scheme. Formative evaluation can be understood to have adequately occurred through the way that each project team captured and worked with evaluative data for their own project by meeting monthly with a mentor, maintaining monthly written progress reports, reporting at the progress seminars for all teams, gathering students’ and other teachers’ feedback on their project, and inviting referees’ and external colleagues’ peer review of their formal project reports. Summative evaluation can be understood to have occurred only partially to date through the evaluation reported in the present paper by members of the academic development unit that sponsored the scheme. Accordingly, planning has been done for an evaluation of the 2002 through 2005 operation of the scheme by an evaluator external to the University. A survey instrument has been designed for use with key stakeholder groups to evaluate the value and worth of ARTL in terms of Guskey’s (1999) criteria for measuring effectiveness of professional development, and survey targets and criteria to be evaluated are: (a) project team leaders, other participating project staff, and mentors on their reaction to taking part; (b) coordinators of courses and programs and students in courses in programs in which projects occurred on their observations about learning and application arising from (a); (c) coordinators of courses and programs in which projects occurred and other academic managers of participating staff on their assessment of macro-level outcomes for teaching arising from (a) and (b); and (d) all of the above on their sense of organizational learning and development arising from (a), (b) and (c).

### *Moving Further*

While recognizing the value of further, external evaluation, it is important not to downplay the information and knowledge management achievements that underpin the present paper, nor to overlook them as an essential precursor to inviting in an external



evaluator. The operation and management of ARTL between 2002 and 2005 was difficult to routinize because it happened during a period of prolonged and extensive organizational change. There was no certainty of continuation for the scheme from one year's University budget to the next in any year of its operation. Various approaches to allocating the coordination workload were tested over the four years of operation, and the role was not assigned to a permanent member of staff until mid-2004. Those who would undertake the scholarship of academic development are often challenged by such churn in their organizations and across the higher education sector.

Specific actions that would assure continued improvement of ARTL into the future include: carrying out external, independent evaluation of the scheme and adopting ensuing recommendations; establishing an ongoing budget line item and base funding; capturing the intellectual property of the ARTL coordinator in a suitable form (such as a handbook or resource kit) to ensure internal information management and to share with academic developers elsewhere; and rolling out ARTL across the rest of the University, and potentially across other universities in a coordinated fashion as a scholarly initiative.

Based on our experiences, we believe that it is worth persisting. Only in this way will all those with a commitment to improve teaching and its scholarship be able to make evidence-based decisions, knowing whether or not schemes like ARTL can provide the systems and structures to sustain project impacts, value teaching, and build the organizational culture that is needed for continuous quality improvement in a performance-oriented external operating environment.

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# Playing to Learn: Game-Driven Comprehension of Complex Content

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Instructional games have become an established factor in corporate and government training, and they are beginning to appear to a greater extent in educational institutions. As a result, courses on instructional game development are being incorporated into educational programs. Students in these courses find themselves faced with the task of confronting, understanding, and internalizing concepts that they have never before encountered. This article reports the practice and result of using games in one such course, and uses student commentary to support the conclusion that the games used were successful in reducing anxiety, increasing motivation, and improving understanding.

In training and education, technology-based games and simulations are now popular and becoming more so, but thinking of games and simulations as learning tools has a long history in the literature (Cameron & Dwyer, 2005; Dekkers & Donath 1981; Fraas, 1980; Saunders, 1997) and an even longer one in common knowledge. For example, the statement that the battle of Waterloo was won on the playing fields of Eton, famously attributed to the Duke of Wellington, refers to competitive sports as a simulation of the more serious competition of warfare. In traditional classrooms, it is common for students to have trouble understanding how learning to solve word problems in math class will help them in life, and they find the teacher's examples of balancing their checkbooks or figuring their income tax unconvincing. The teacher, on the other hand, considers practicing arithmetic and writing expository prose a kind of simulation of real life and hopes that the learning transfers to useful job skills like doing expense accounts and writing interoffice memos.

The purpose of this paper is to report the use of original games as a teaching aid in an instructional game course in a master's program. Specifically, the games were designed to provoke, encourage, and expand the discussion of the reading that is a necessary part of the course. Understanding instructional game theory requires reading and thinking about ideas that are unusual to most people. Discussion, examples from the learners' experience, input from the instructor, and contentious debate all contribute to achieving this understanding. To date, this author has produced three games designed to stimulate and intensify students' participation in reviewing the reading, and although all three of them have been successful to some degree, they have had different effects.

## Background

### *Simulations*

A simulation is an analogy of a realistic situation, an analogy that may or may not be realistic (Dekkers & Donath, 1981; Rice, 2007). Unlike traditional teaching

strategy, modern technology-based simulations create an environment in which students easily suspend their disbelief, become immersed in their roles, and assume the reality of their learning. An instructional simulation is a manufactured situation that gives learners realistic hands-on practice, be it landing an airliner or closing a sale with a difficult client. To be effective, however, it has to be realistic enough to enable the learner to believe in it. The flight simulator has to act and feel enough like an airliner and the simulated client has to act and feel enough like a real client (Green & McNeese, 2007; Rice, 2007; Summerfield, 2004).

This is not to say that all simulations have to be as realistic as possible. Sometimes developing an environment that accentuates specific elements of the real environment is sufficient, or even more effective, because it excludes nonessential variables that might distract the learners from the desired central focus (Saunders, 1997; Squire, 2003; Vogel, Vogel, Cannon-Bowers, Bowers, Muse, & Wright, 2006). These low-fidelity projects are much less expensive to produce, and many do not use computer technology. Many computer-generated simulations, however, are considered low-fidelity when the artificiality of the system is obvious to the learners (Squire, 2003).

### *Video Games*

The video game industry produces games that engender strong emotions like awe, fear, power, and happiness in the players by creating a virtual reality that allows collaboration, social interaction, victory, and defeat (Squire, 2003). Video game players achieve a level of involvement with the game that Csikszentmihalyi (1991) has named "flow," or "flow state." While in this state, they forget their normal cares, the passage of time, and derive intense satisfaction from the sheer pleasure of performing the activity required by the game. Bates (2001) corroborates this idea when he calls one of the basic principles of game design "immersion" and says "a successful game sucks the player in and doesn't let him [or her] go" (p. 27). Rollings and Adams (2003)

recognize the same concept and connect it to interface design, saying that players get into “a sort of ‘groove’” where they become one with the machine and are “no longer aware of the user interface at all,” having entered “the infamous *Tetris Trance*” (p. 13).

### *Motivation and Instructional Games*

Educators have been investigating the possibility of harnessing the motivational power of video games for at least 25 years (Cameron & Dwyer, 2005; Fraas, 1980; Dekkers & Donath 1981; Saunders, 1997), and they have discovered some telling differences when comparing the characteristics of gaming activity to traditional classroom activity. Gaming puts the player in control; gives clear, immediate feedback; and offers progressively more challenging levels of achievement at the player’s own pace. By contrast, the classroom puts the teacher in control; gives sketchy, infrequent feedback; and expects the entire group of students to progress at the same rate (Csikszentmihalyi, 1991; Squire, 2003).

Arguably the most important element of game-playing, the central element of the flow state, and the crucial element in real-life learning is the cycle of intrinsic motivation (Cameron & Dwyer, 2005). Under the right conditions, the player/learner sees each frustration, each failure, as an opportunity to get it right on the next try. Finally getting it right automatically establishes a new level of skill that encourages the player/learner to attempt a more difficult move, the achievement of which enables reaching a still higher skill level (Prensky, 2001; Salen & Zimmerman, 2004). Race car drivers spend hours practicing seemingly identical laps around an oval track and are gratified to shave fractions of a second off their personal records. Piano players spend hours practicing the same piece of music to achieve minute differences of tone and timing that others may not even detect. One person’s boredom is another’s obsession, and feedback so subtle as to be imperceptible to one person is another’s vital information (Aldrich, 2004; Csikszentmihalyi, 1991).

Channeling the power of games, using their ability to capture the attention of the player and focus it strongly on specific learning activities, is no longer just speculation, but an everyday reality (Cameron & Dwyer, 2005; Squire, Giovanetto, Devane, & Durga, 2005). Games are used extensively to promote learning in industry, educational institutions, and, perhaps most impressively, the American military. The military, in fact, conducts continuous game-based training for a constantly shifting population of over three million military and civilian personnel (Prensky, 2001).

Feedback is a basic principle of game design; there must be a reaction to the player’s every action to sustain the player’s entertainment, and therefore the player’s

motivation (Bates, 2001; Cameron & Dwyer, 2005). If the player hits keys or clicks the mouse and the game does not respond, the player becomes frustrated or bored, and either state may make the player stop playing the game. However, the player will quickly recognize a simple beep or tone as a signal that there is no play-relevant response (Salen & Zimmerman, 2004). With similar reasoning, Rouse (2001) stresses non-linearity as an essential design requirement. Creating non-linear stories and non-linear sequencing enables each player to live the world of the game in his or her own way and enables the same player to find different ways to replay the game, thereby expanding the opportunities for interest and enjoyment.

For player/learners, games provide a huge diversity of involvement and types of interaction ranging from very simple to very complex. They can require passive observation, rapid and continual choices, thoughtful strategy planning, good eye-hand coordination, and fast physical reflexes. They can induce players to follow a linear process, to create their own worlds, to participate in social activities, to form effective teams, to kill, and to save lives (Bates, 2001; Prensky, 2001; Rollings & Adams, 2003; Salen & Zimmerman, 2004). Saunders (1997), discussing experiential learning theory and learning styles in instructional games and simulations, supports the idea that the diversity of learning approaches that games present has the potential to appeal to a wide range of learning styles.

### *Game Genres*

The following review of some game genre descriptions, all drawn from Rollings and Adams (2003), may be useful to illustrate the diversity of learning afforded by games.

*Action games.* Action games are “twitch” games; they come in a variety of styles, but successful play in all of them depends on developing quick reactions and eye-hand coordination. These games, perhaps because they are mechanically simpler, were the first generation of video games and are still, because they exploit speed in place of complexity, the least expensive to produce. Their interfaces do not require high fidelity realism; in fact, the speed of play would prevent players from using or appreciating fine environmental detail.

*Strategy games.* Strategy games, historically derived from board games, usually allow players whatever time they need to decide on the next move. Incidentally, Jones (1999) holds that this type of game fosters higher order thinking and more intellectual satisfaction. The exceptions are the less common real-time strategy (RTS) games, where events in the game do not wait for the next move, but progress in immediate reaction to the last move, adding the pressure of time to the other variables governing the

game's outcome. This pressure also forces a more physical conflict between players and their foes, thereby reducing the proportion of higher-level thought. Jones (1999) suggests that a balance of twitch and strategy in the same game may be the best format. Strategy games are generally built around conquest, exploration, trade, or, often, an interdependent blend of two or all three of these themes. Player/game interaction is quite complex and promotes opportunities for players to practice commanding and building teams at levels from squad leader to general. Incidentally, market demographics indicate that these games, perhaps because they focus on conquering all or a major part of a virtual world, tend to have much more appeal for male than for female players.

*Role-playing games.* Computer role-playing games (CRPGs) invite players to incorporate themselves into the story and to make it their own. CRPGs are typified by strong story lines and by equally strong character development, and players tend to be attracted to one or the other of these elements. A story-line player empathizes with a character, becomes that character, and focuses play on developing the story. This usually means that the story comes to revolve around the player's character, who becomes the center of the action. A character-development player is more interested in using the experiences of the game to enhance, for good or evil, the capabilities, understanding, and emotional power of the game piece that represents the player. In fact, virtually and in the mind of the player, the game piece is the player.

*Construction and management simulations.* Construction and management simulations (CMSs) tend to be single-player games that lack swift action and competition, focusing instead on building something (e.g., a city or a theme park) and maintaining it. CMSs appeal to people who enjoy creating and planning and continually tweaking to make improvements and to repair damage caused by natural disasters like earthquakes, fires, disease, and pollution. Players of these global process games nearly always have an omniscient point of view within the world of the game, rather than seeing only what is in front of their game character's gun or what can be seen through their game character's windshield.

This sampling of genres serves to establish that games accommodate and promote a wide variety of player attitude and behavior. Understanding the relationship between players and their games may well be the first step in creating games that apply the motivational force inherent in game play to achieving educational goals and objectives. However, the exploration of a sample of genres in conjunction with readings on the principles and processes to create games is not enough to enable students to achieve the mind state that is necessary to transform them into

game creators. Of course these elements help, but the students need more. This author has been observing that modeling is an effective instructional strategy, and, in the case of the game course discussed here, has done that by creating games to accomplish everyday class situations like review and exploration of the reading materials.

## Course Description

### *Preparation*

In preparation for teaching a graduate level Instructional Game Development course, this author began reading on the subject about a year in advance and contacted, by phone, e-mail, and personal visits, faculty who were already teaching instructional game courses in other institutions. A wide variety of approaches were found in the game development courses, ranging from almost entirely theory and research to almost entirely hands-on production. Being part of a program that equally emphasizes knowing underlying theory, producing practical solutions, and employability upon graduation, this author designed a course that included substantial reading, extensive discussion, and the development of working games. Fortunately, some knowledge of the characteristics of students who would take the course was available from previous experience with them. They would be seniors in the program and therefore have well-developed experience in areas that provide preparation for game design, areas like instructional design, multimedia production, and the use of authoring tools appropriate for producing a game. This knowledge helped in designing the course projects so that each student could choose the most satisfying from a variety of approaches.

### *Assignments*

The students were to produce two projects, one individually and one in group. The individual project was research-based. The group work involved developing an instructional game for a client. The individual project had flexible guidelines to allow for the students to choose the approach that best fit their interest and skill level. The options were:

1. Choose to work in a more theoretical framework in which you will select a game, play it, observe others playing, document your research, and report.
2. Or, if you feel that technical knowledge is your forte then you can choose a game like Nexus: The Jupiter Incident or Half Life II, both from Sierra; or Elder Scrolls III

Morrowind, from Bethesda Softworks; or Neverwinter Nights from Bioware; or Unreal Tournament, from Epic Games, Inc., which allows you to add content to it and create an instructional MOD within it.

3. Or, still in the high-tech realm, you can choose a tool other than Flash and create an instructional game.
4. Or, if you want to explore new avenues you can research and create an instructional game using StarLogo—a decentralized system available for free from MIT.

The reason for excluding Flash (option 3) was that it was the tool designated for the development of the group project for the client.

The group project involved the production of an instructional game to attend the needs of a client. An integral part of the project was the ability of each of the group members to work well together and complete their part of the work. Teamwork is very common in the Instructional Technology field and learning how to function well when working in groups is an important skill for students to leave the program with. This instructor was available to participate in group meetings when the group was unable to solve a problem by themselves, but this resource was to be used only as last resort. The students were also instructed that “last resort” did not mean waiting until the last minute to seek help. It was the group’s responsibility to have the work completed according to the project guidelines and timeline.

Since each finished project was the work of a group, all the members of each group received the same grade. In order to provide each group with an idea of the quality of their work and allow the group the opportunity to improve their performance while executing the project, they received grades on portions of the project as they completed them, but all portions were parts of the same project and were to form a seamless whole.

In addition to the electronic submission of each group’s project, each group was asked to start a three-hole binder and add the pieces of the project as they were being produced. The final product was to be burned onto a CD. The parts of the project to be turned in for grade were, in sequential order, as follows:

1. Proposal for client
2. Prototype
3. Design document
4. Developed product
5. Group work presentation.

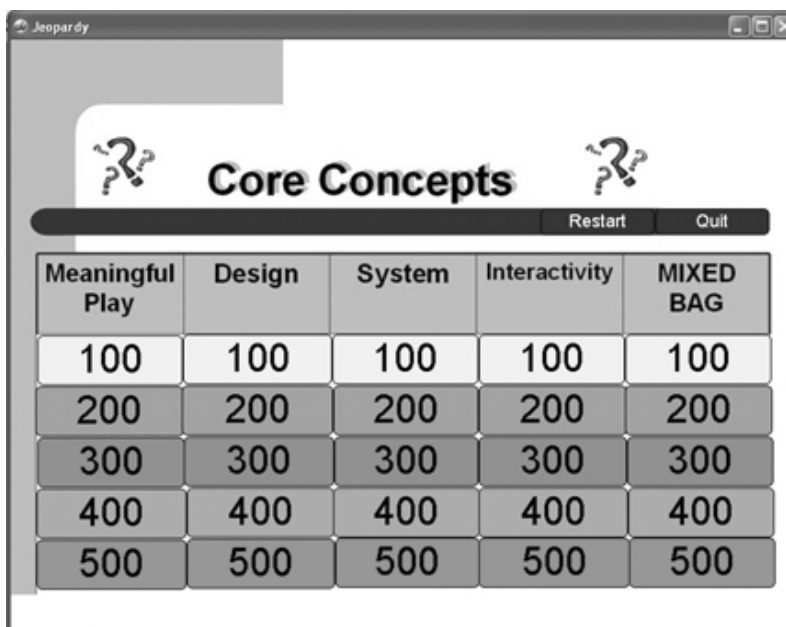
### *Learner Characteristics*

The course discussed here is Instructional Game Development, which is an advanced course in a master’s program in Instructional Technology. The participating students had a solid knowledge base in areas such as instructional design and multimedia production. They also had various levels of skills in the use of the possible authoring tools to be used to produce a game. Although the students were able to understand the characteristics of various levels of simulations and the various aspects that make video games such an attractive phenomenon, this realization did not enable them to become comfortable as game developers.

Previous experience with the students of this master’s program had led to the realization that some of them often have trouble grasping new and difficult content from reading alone. Reading reinforced by discussion, however, normally leads to greatly increased understanding, as the participants collaborate in making connections between their knowledge base and new concepts. Moreover, the concepts in instructional game theory were new; that is, these students had not encountered them before. Learning to incorporate into their thought and language such things as the mathematical basis of a game, its operational and implicit rules, and its role in the cultural fabric of society requires careful reading and thoughtful debate (Salen & Zimmerman, 2004). In spite of the difficulties of understanding and assimilating the concepts from the readings, most students, to this author’s surprise, added another difficulty by choosing, for the individual projects, to use an authoring tool to develop an educational game “from scratch.” The tool of choice, due to availability and the fact that most of them were taking a class on advanced authoring was Director, from Macromedia.

The students were accustomed to designing technology-based instructional solutions by using rules and principles derived from Instructional Design and Multimedia Production courses. Instructional game design, however, required that they use a different paradigm. Game design requires, for example, the understanding that games are systems of interlocking systems governed by inviolable rules that paradoxically can be circumvented under certain circumstances. A game designer can use such a system of rules to create a virtual environment where the skilled player can produce effects that are far beyond the designer’s ability to predict, but that satisfy the necessities implied by the rules (Salen & Zimmerman, 2004). The students soon understood that they needed to step out of their comfort zone and explore a world with new restraints

FIGURE 1  
IGD Jeopardy



Meaningful Play	Design	System	Interactivity	MIXED BAG
100	100	100	100	100
200	200	200	200	200
300	300	300	300	300
400	400	400	400	400
500	500	500	500	500

and different motivators. As an aid in making this transition happen, this author produced some games during the course, partly to use as examples of completed games but mostly to provoke motivation and enthusiasm while reviewing the weekly readings. Not coincidentally, motivation and enthusiasm were the same elements the students were trying to achieve in their own games. Since Director was the tool of choice for most of them, it was the game-authoring software this author used to produce the games employed as in-class instructional devices.

#### *Games Developed for the Course*

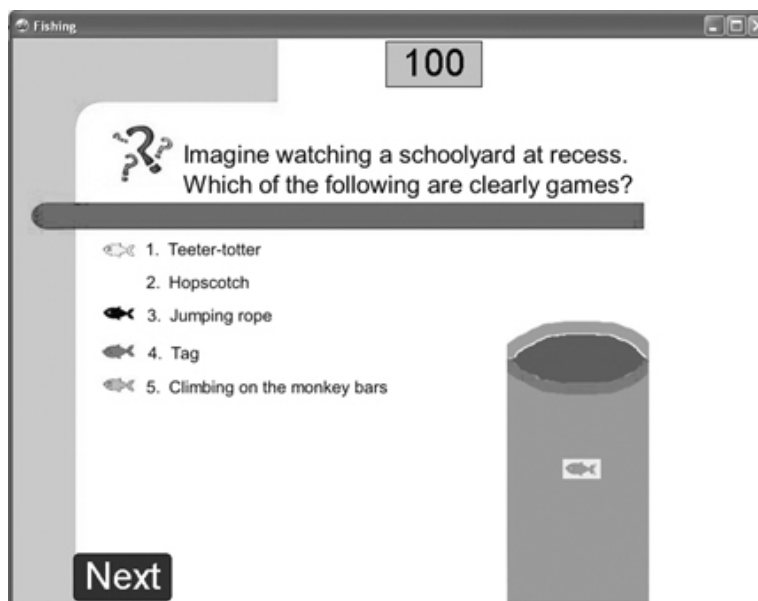
*IGD Jeopardy.* The first effort was IGD Jeopardy (see Figure 1), based upon the popular television game show. Three students were selected as a judging panel to decide if the players answered correctly or incorrectly. The game was projected on a screen and each player in turn selected a category and amount. Clicking on the chosen square caused a question and an ANSWER button to appear. After the player's answer, which was given verbally, the host clicked on the ANSWER button to show a screen containing the answer and a SCORE button. Sometimes discussion between the judges and entire class was necessary to determine whether the player's answer was sufficiently correct. Then clicking on the SCORE button showed the score sheet, which contained a list of the students' names with a field to update their score. At the end of game the winners received token prizes (e.g., little

bouncing balls, stick-on stars) for their performance. Upon reflection, this author regrets including the prizes, which were perhaps an afterthought influenced by the television version of Jeopardy. In the use of games in the course, they added an extra variable that was not meant to be measured. After playing the game, and in the process discussing each point from the readings, the class explored both the educational effect of using the game in class and effectiveness of the game design. The final portion was an optional, after-class discussion of the code and tips and tricks in Director.

*Fishing for Answers.* The second reading review game was Fishing for Answers (see Figure 2), an original multiple choice game in which the players got points by moving fish into an aquarium. The fish were markers for the multiple choice options, and making a correct choice automatically added 100 points to the player's score. Making an incorrect choice subtracted 100 points. Unlike IGD Jeopardy, which was visually open to the entire group and demanded voluntary participation from the group, Fishing for Answers was played individually by each student on each student's computer. Thus the atmosphere of the game and the feeling of competition were different. Instead of an active, noisy group in which various members tried to answer first, Fishing for Answers produced a quiet group, each member of which was focused on an individual screen and felt little or no time pressure. After the game, the students received token prizes that varied in accordance with the score obtained. Because the students played this game on individual computers,



FIGURE 2  
Fishing for Answers



upon completion of play the questions were projected and discussed with the entire class. As before, the instructor dismissed the class at the normal time but invited any class members who wished to stay for a discussion of the code and tips and tricks in Director.

*Randominate.* The third game was Randominate (see Figure 3). Playing Randominate utilized a slightly different approach. A random selection from a set of questions based on the reading of the week was projected on a screen visible to the entire class. A student who had volunteered to answer responded first and then the entire class contributed to the response and discussed the implications generated by the question. Although playing Randominate involved no scoring, and there was no “winner,” there was a real sense of competition as students rushed to add, and emphasize the significance of, their contributions. The questions raised important points and generated enthusiastic debate about their application to the practice of instructional game design. This game was played on two different occasions.

### Results

These simple games produced specifically for the course and tailored to accomplish routine tasks of class meetings were shown to be helpful in a variety of ways. First, the game was an attractive device for reviewing the concepts in the reading. Second, it served as an achievable example. Third, detailed discussion of the process that produced it increased the students’ self-efficacy, that is, their confidence in their ability to

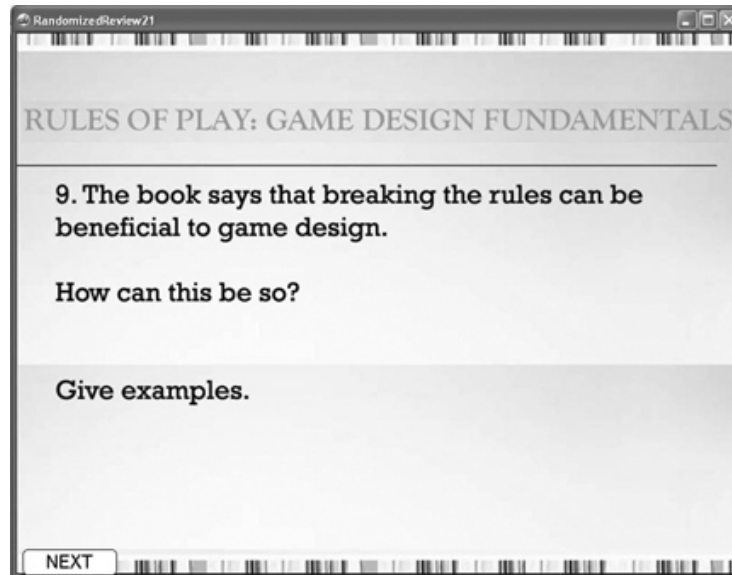
create their own games and thus complete the course projects.

The students liked the approach of using games to review the readings, and they reported that they profited in multiple ways from this approach. The game atmosphere added pizzazz to the potentially boring task of reviewing the readings, provided students with the necessary guidance in the formalization of their own projects, and allowed follow-up discussion on the code, tips, and tricks in Director, which helped them to solve development problems they were facing in their own production.

### Learner Feedback

In each class meeting the students were provided with a class agenda containing a list of the planned activities, the class objectives (designed to support the course objectives), and a checklist of the activities to be completed before the next meeting. After each class, the students were asked to complete an anonymous six-question survey to evaluate the class meeting in relation to the class objectives. The six items addressed (a) the percentage of the objectives reached, (b) the methods used to deliver the content, (c) their level of comfort to ask questions, (d) their contribution to the success of the meeting, (e) the instructional pace, and (f) the quality of their learning. In addition, after each instructional meeting the learners were asked to submit a journal entry, three short reflective paragraphs evaluating the quality of instruction and their learning experience. The paragraphs addressed three points: (a)

FIGURE 3  
Randominate



how effective the instruction was, and why; (b) how the instruction contributed to their learning, and why; and (c) how their participation contributed to the instructional quality.

Table 1 shows the survey results for the four class meetings in which the games were used to review the readings. Because all the surveys showed very similar results, they are discussed here as a group. In the class meetings where the games were utilized, the number of responding students was 12, 11, 10, and 12, respectively, for a total of 45 responses per item. Since each participant provided 6 responses per survey, the total responses were 270. For the Percent of class objectives achieved item, one of the responses was 80-90%; all the others were either 100% or 90-99%. In other words, 98% indicated above 90% achievement of the class objectives. Of the 225 responses to the other items, there were no Bad or Very Bad responses, and 6, or 2.7% of the total, were Neutral. In other words, 97.3% of these responses were either Very Good or Good.

In their reflective journals, the students recorded their impressions and opinions about using instructional games as a technique to enhance learning. Their comments overwhelmingly corroborate the survey results. In the interests of consistency and thoroughness, excerpts from the reflective journals are presented in the same order as the chronology of the classes that they represent: IDG Jeopardy, Fishing for Answers, the first playing of Randominate, and finally the second playing of Randominate.

The following are student comments about the class meeting when IDG Jeopardy was played:

The game was an awesome way to review the chapter. It is the most successful chapter review I have seen since I have been here. I was glad to help by judging. (Student A)

I enjoyed this class. The game we played was a good reinforcement of your repeated statements that our individual games do not have to be works of art that are ready for market. It was simple and straightforward, but functioned very nicely. (Student B)

The class was fun because we got to play the Jeopardy-style trivia game and I almost won towards the end but got a little excited and ended up trying to answer questions haphazardly. I still tied for second, though. The overall contribution towards my learning was great because we basically went over all of the major points covered in the "Rules of Play" textbook in our required readings thus far. (Student C)

When we played the Fishing for Answers game the students' reflective journals were equally positive:

The class was great because the fishing game I played in class help me improve my understanding about chapters I have read. (Student D)

TABLE 1  
Class survey results for the class meetings when games were played

	IGD Jeopardy					Fishing for Answers					First Playing of Randominate					Second Playing of Randominate					Totals
	10	9	8	7	6	10	9	8	7	6	10	9	8	7	6	10	9	8	7	6	
Responses for Percent of class objectives achieved	6	6	0	0	0	6	4	1	0	0	6	4	0	0	0	7	5	0	0	0	45
Responses for Teaching methods	vg	g	n	b	vb	vg	g	n	b	vb	vg	g	n	b	vb	vg	g	n	b	vb	45
Responses for Comfort asking questions	8	4	0	0	0	8	3	0	0	0	7	3	0	0	0	9	3	0	0	0	45
Responses for Student contribution	7	4	1	0	0	7	4	0	0	0	7	3	0	0	0	9	3	0	0	0	45
Responses for Pace of activities	7	4	1	0	0	8	2	1	0	0	6	4	0	0	0	8	4	0	0	0	45
Responses for Quality of learning	9	2	1	0	0	8	3	0	0	0	5	5	0	0	0	7	4	1	0	0	45
Totals	6	6	0	0	0	6	4	1	0	0	8	2	0	0	0	8	4	0	0	0	45
	43	26	3	0	0	43	20	3	0	0	39	21	0	0	0	48	23	1	0	0	270

*Note.* For percent of class objectives achieved the possible responses, in order from left to right, are 100% (10), 90-99% (9), 80-89% (8), 70-79% (7), and < 70% (6). For the other items the possible responses, in order from left to right, are Very Good (vg), Good (g), Neutral (n), Bad (b), and Very Bad (vb).

I feel that the Game Design classes are definitely coming together. As we work through the exercises, I feel a better sense of understanding of games. I'm beginning to see how they might fit into an instructional strategy. I've really enjoyed the games ... built to serve as examples. They have been a great help. (Student B)

This particular class was very interesting because we got to see another example of a game that you developed. I find this interesting because it makes the readings and the creation of our individual projects more clear seeing examples like this. (Student E)

After playing Randominate, students commented:

As the semester continues, I feel that I'm getting a somewhat better appreciation of the concepts that form the basis of many games. The reading is quite interesting. Unfortunately, we tend to be so busy with our many projects that the reading tends to take a back seat. I very much appreciate the effort that you have put forth in order to give us some examples of basic games and the code that is

behind them. This adds a practical aspect that provides grounding to the rest of the course. (Student F)

I found the exercise on randomization interesting for the discussions that it generated as well. We tend to take fairly firm stands on certain topics. I find that we continually come back to the question of just what constitutes a game. You would think that this would be easy to determine. I, however, believe that a person's personality and belief set tends to play a large role in where he or she draws the magic circle. The point of view that a person brings to the game would have a significant impact on this as well. (Student F)

The positive tone was also present in the reflective journals received for the class in which Randominate was played for the second time:

The class was fun because we played the ... game with chapter review...The overall contribution towards my learning was great because the review game helped fill in the blanks on content/concepts I may have missed from my own readings. (Student G)

The class was very good because I felt like we reviewed a lot of information, but at the same time it was also more challenging than other weeks because of the fact that we were covering two weeks worth of material. But it was fun and interesting playing the randominate game. Although, I must admit that I was caught off guard by the question that I received. (Student H)

The game session at the start of the class is a very good review of the materials from the text. Although we do the reading and create and answer the discussion questions as assigned, I often find it difficult to use the information effectively. The review offered by the game, and the discussion that ensues, provides an excellent exploration of the material. (Student I)

The most impressive thing about the student reaction to using games in class was that 97.3% of the opinions expressed about it in the surveys were positive and none were negative (2.7% were neutral). More surprising yet, 100% of the written comments about it were positive. This kind of unanimity is surprising when a new learning strategy or tactic is introduced, but in the four classes in which games were employed no one disagreed with the effectiveness of their use. With this kind of enthusiastic reception, it was difficult to avoid the conclusion that using games as a mechanism to enhance learning improved the class. Further, the enthusiasm was not simply because the games made the learning more fun. Many students included in their comments direct references to the way the games made it possible to more easily absorb and expand knowledge about the course content.

This display of testimonials from the students may be discounted as simply a "smile sheet" reaction, showing only that the students liked the activities involved in using the games. It does not demonstrate what learning took place and whether that learning was more or less than would occur without using games, which is beyond the scope of this paper.

### Conclusion

Instructional games are entering the realm of education, and educators, trainers, and learners are hoping that the powerful, even addictive, motivation that is embedded in game play can be channeled into formal, institutionalized learning. Games can reduce boredom, generate a healthy competitive atmosphere, give learners a sense of progress and achievement, and produce a rapt involvement in the virtual world in which they operate. Games can be played in groups, pairs, or alone. Competition can be with other players or with computers. The flexibility and variety that

games afford the learner are vast (Cameron & Dwyer, 2005; Dekkers & Donath 1981; Fraas, 1980; Prenski, 2001; Saunders, 1997).

This description of the use of games in a graduate course is a small example of the use of games as a means of instruction, yet it serves to reinforce the idea that games can be a constructive, motivational force in education. The students' reflections connecting game play to the content of their course, as well as their overwhelmingly positive reactions to the games as an educational device, emphasize the possibility that there can be a fruitful transfer of learning from games to course content.

It is important to include here, however, that (a) this limited experience does not supply sufficient data to allow generalizations, and that (b) the content of this course is instructional game development, which may have had a bearing on student reaction. In spite of these caveats, learner reaction was so positive, and making and playing the games was so productive and enjoyable, that game-based learning will be incorporated into all of this author's courses.

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## Connecting Critical Reflection and Group Development in Online Adult Education Classrooms

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This qualitative multi-case study explored the space where critical reflection and group development met within the online environment for the adult learner. Using critical reflection with adult learners through their responses to Stephen Brookfield's (1995) Critical Incident Questionnaire (CIQ) in the online environment precipitated instructional effectiveness by unearthing reactions to the online environment and provided a consistent framework for assessing group development. The study context included two sixteen-week, online, asynchronous graduate courses on adult teaching strategies at a research-intensive university located in Midwestern United States. The findings reflected evidence of Tuckman's (1965) and Tuckman and Jensen's (1977) group development sequence of forming, storming, norming, performing, and adjourning within both courses. The analysis and implications were related to critical reflection, group development, the online environment, and adult learning.

Critical reflection is valuable when working with adult professionals (Mezirow, 1990) and is especially important in the online environment (Brookfield, 2006). Through courses that include interaction and building productive online communities (Palloff & Pratt, 2005; Salmon, 2002), adult learners receive a meaningful and long lasting experience. If they contribute to the construction or adaptation of the course they will stay more involved and focused with the materials. A "conscious community" is formed when in the online environment there is "a discussion about goals, ethics, liabilities, and communication styles, that is, norms" (Palloff & Pratt, 1999). This negotiation of norms sets the foundation for other activities within the online community, including critical reflection about the course.

Critical reflection in online environments is an effective way to glean feedback for instructional purposes (Conrad & Donaldson, 2004; Hanna, Glowacki-Dudka, & Conceição-Runlee, 2000) or to make course adaptations (Valentine, 1997). It also is "an effective way to track individual experiences" within the course (Conrad & Donaldson, 2004, p. 73). This study contends those reflections can unearth evidence of group development as defined by Tuckman (1965) and Tuckman and Jensen (1977). Brookfield's (1995) Critical Incident Questionnaire (CIQ) is the tool this study used to test for evidence of group development in the online environment.

### Background of Study

#### *Reflective Practice and Critical Reflection*

Reflective practice is a popular topic among educators when examining their work in the classroom. Many books and articles center around the concepts of "helping teachers understand, question, investigate, and take seriously their own learning and practice"

(Brookfield, 1995, p. 215). Donald Schön (1983; 1987) is probably best known by educators for his writing about the reflective practitioner and how to engage in reflective practice. Schön developed the notions of reflection-in-action and reflection-on-action as he considered the ways that practitioners could improve their work through understanding their response to daily situations. Through this reflective practice:

The practitioner allows himself to experience surprise, puzzlement, or confusion in a situation which he finds uncertain or unique. He reflects on the phenomenon before him, and on the prior understandings which have been implicit in his behaviour. He carries out an experiment which serves to generate both a new understanding of the phenomenon and a change in the situation. (Schön 1983, p. 68)

Reflective practice is not only useful for individuals, but it becomes critical when it is applied within organizations and communities to examine the collective assumptions and consequences of the work. Merriam, Caffarella, and Baumgartner (2006) highlight several elements of reflective practice. Reflective practice involves a "deliberate slowing down to consider multiple perspectives [while] maintaining an open perspective.... [It also requires] active and conscious processing of thoughts.... to achieve a broader context for understanding" (p. 173). Through the examination of beliefs, goals, and practice, further insights and understanding are gained, and more consistent actions can be taken.

Schön's (1987) reflection-in-action, essentially the thinking and reflecting taking place in the midst of practice, can be applied to both face-to-face classroom environments and to online environments where interactions are asynchronous and are often delayed. Since the online environment is still unfolding for adult

educators and adult learners, the opportunity for reflection-in-action is ideal to capture immediate feedback. Conrad and Donaldson (2004) suggest that “reflection can provide insight for instructors on their teaching and for the students in their learning” (p. 73) through evaluation of the experience and responses of the students from a variety of sources like journals or questionnaires. Stein (2000) reminds us that “through the process of critical reflection, adults come to interpret and create new knowledge and actions from their ordinary and sometimes extraordinary experiences” (p. 2).

Critical reflection, as advanced by Mezirow (1990), coincides well with adult learning and the online environment since critical reflection does not just involve adults generally thinking and reflecting during practice, but it refers specifically to reflecting back on prior learning experiences under specific circumstances. In the online environment, adult educators have the opportunity to expand the possibility of reflection through collaborative techniques with other learners.

Brookfield (1995) offers six reasons that critical reflection is important. Specifically, critical reflection about our teaching (a) helps us make informed actions with a better chance of achieving desired outcomes; (b) helps us develop a rationale for practice, and the underlying principles behind our practice; (c) helps us keep perspective about limits to our abilities in the classroom; (d) helps us to ground ourselves emotionally; (e) enlivens our classrooms; and (f) increases democratic trust enabling students to feel safe in their own opinions and beliefs. This study investigated the use and value of critical reflection and reflective practice through student responses when teaching in the online environment.

### *Critical Reflection in the Online Environment*

Research on critical reflection provides little attention to the online environment. Proponents of critical reflection in the online environment (Conrad & Donaldson, 2004; Hanna, Glowacki-Dudka, & Conceição-Runlee, 2000) primarily cite the evaluation of instructional effectiveness as one of the benefits of critical reflection for online groups. Conrad and Donaldson (2005) state that “reflective feedback allows instructors to evaluate the effectiveness of the students’ experiences in the course” (p. 73). The information gleaned from those reflections can support formative evaluation of the course, and modifications can occur to better meet the learning objectives for the course and also meet the needs of the individual adult learners.

Hanna, Glowacki-Dudka and Conceição-Runlee (2000) support and expand this notion by stating that “this [reflective] approach to evaluating instructional effectiveness offers a great opportunity to get learners’

perspectives about how well the course materials work and how interesting the materials are. As a result, learners become involved in reflecting on their own learning and what helps them learn best” (p. 48).

Instructional effectiveness is not the only advantage of critical reflection in the online environment. Palloff and Pratt (2005) cite transformative learning promoted by reflective practice as valuable elements of online community and in their model of online collaboration. Yet, they do not describe how such transformative learning is achieved in the online environment, nor if it is achieved only for the individual, the group, or both. Other research demonstrates that reflection tools can be applied to engage the online learner. Conrad and Donaldson (2004) claim that “reflection and self-assessment are important components for empowerment in any learner-focused environment” (p. 31) and that requiring students to provide reflective entries online also encourages “participants to make sense of the online process and their position within the learning community” (p. 31).

In order to support reflective practice in an online environment, Conrad and Donaldson (2004) provide a variety of synchronous and asynchronous, anonymous, and self-declaring reflective options for the online learner. These reflective activities require students to share a “synthesis of the learning experience” (p. 74). However, those activities are designed for the individual online learner without recognizing the need of assessing groups or group development.

Therefore, a gap exists in the literature related to critical reflection in the online environment within groups, group development, and collaboration. While research on face-to-face groups, group development, and collaborative learning are plentiful, R. Smith (2005) contends that “there is scant research to enable an understanding of the group dynamics within online collaborative groups” (p. 185).

### *Critical Incident Questionnaire (CIQ)*

Brookfield (1995) designed the CIQ to help “embed our teaching in accurate information about students’ learning that is regularly solicited and anonymously given” (p. 114). Brookfield (1995) explains that “its purpose is not to determine what students liked or didn’t like about the class. Instead, it gets them to focus on specific, concrete happenings that were significant to them” (p. 114). Brookfield’s CIQ was designed as a single-page form that could be handed out to students at the end of a face-to-face class.

The students would complete the CIQ anonymously, taking between five to ten minutes to answer the following five questions:

1. At what moment in the class this week did you feel most engaged with what was happening?
2. At what moment in the class this week did you feel most distanced from what was happening?
3. What action that anyone (teacher or student) took in class this week did you find most affirming and helpful?
4. What action that anyone (teacher or student) took in class this week did you find most puzzling or confusing?
5. What about the class this week surprised you the most? (This could be something about your own reactions to what went on, or something that someone did, or anything else that occurs to you). (Brookfield, 1995, p. 115)

After the CIQ's were collected, the responses were analyzed for themes and brought back to the class in a form of reflective discussion. Time was allocated at the beginning of the next class to review the prior class responses.

In reviewing the literature related to Brookfield's Critical Incident Questionnaire (1995), it was found that many articles apply the CIQ in face-to-face classrooms or in other traditional settings (Adams, 2001; Brookfield, 1996; Lupton, 2004). Although this tool is recommended for practical application for accessing critical reflection in the classroom, the authors (Adams, 2001; Brookfield, 1996; Lupton, 2004) do not examine it more deeply. The CIQ has not been studied in order to test its validity or reliability. As an informal tool for evaluation and reflection on classroom dynamics, Adams (2001) and Brookfield (1995) agree that CIQs provide "alerts to disaster" in the classroom by requiring public feedback, they "promote learner reflection," they "legitimize diverse teaching practices," they "build trust," and they provide a "unique window into our own development" (pp. 5-6).

In Brookfield's new edition of *The Skillful Teacher* (2006), he includes a chapter of how to implement the CIQ in an online classroom, but he does not elaborate on how to analyze the data collected. Valentine (1997) used the CIQ to assess the online learning environment and the student nurses' perceptions of the behaviors of hospital staff. This study demonstrated that unearthing reflections in the online environment was helpful for the development of the individual and for instructional effectiveness, yet the assessment of group development was absent. However, it is important to note that Valentine's (1997) study was the only study found utilizing the CIQ, originally developed for on-campus classrooms, in the online environment to document group dynamics.

### Group Development

This study examined whether evidence of group development can be found in the reflective responses of the CIQ in an online environment. While there are many models of group development, Bruce Tuckman's (1965) and Tuckman and Jensen's (1977) model of group development sequencing was chosen. It is a highly recognized theory on group development, thus a good place to begin this investigation of the use of critical reflection to unearth group development theory.

Group development sequencing as defined by Tuckman (1965) includes the four progressive stages of forming, storming, norming, and performing. The *forming stage* involves testing boundaries of both interpersonal and task behaviors. It also establishes the dependency relationship on leaders, other group members, or pre-existing standards. The *storming stage* is characterized by conflict and polarization around interpersonal issues creating resistance to group influence and task requirements. In the *norming stage*, group cohesiveness develops, new standards evolve, and new roles are adopted. Group members begin to trust one another, and intimate or personal opinions become easily expressed. Finally, in the *performing stage*, the group is ready to accomplish its task. Roles adapt to the task and are functional, with energy channeled to the group's goals.

While not one of the original four stages, Tuckman and Jensen (1977) added the stage of adjourning stage to the model. The *adjourning stage* completes the tasks, dissolves the group, and terminates the roles. Sometimes mourning and stress are a part of this stage when the group adjourns prematurely (Smith, M. K., 2005).

Vroman and Kovacich (2002) applied Tuckman's (1965) and Tuckman and Jensen's (1977) model to their work with computer-mediated teams and found that it to be an accurate fit for what happened in their study. In the forming stage, the participants "brought their pre-existing social and professional constructs of interdisciplinary practice to the project" (p. 163). They found tentative posts and non-specific opinions shared in order to test the waters. Leadership played a very strong role in these early stages.

During the storming phase, Vroman and Kovacich (2002) found a "perceptible shift of dynamics ... one of assertion, power, and disciplinary boundaries" (p. 165). Individuality still remained dominant; however, the groups' sense of productivity and commitment led to conflict. The groups matured into teams that were norming and performing at a strong level. They were able to "link threads as a strategy to facilitate collective



understanding and progress” (p. 167). They were comfortable enough to ask each other questions, brainstorm together, and offer critique.

### *Summary*

Reflective practice is beneficial for individuals and is useful within organizations and communities. Critical reflection has value and importance when teaching adult learners in both the traditional classroom and the online environment. The use of reflection in the online environment is primarily focused on instructional effectiveness and benefits for the individual, not usually pointed toward group development.

This study applied critical reflection within the online environment in order to assess group development. One specific reflective tool, the Critical Incident Questionnaire (CIQ) designed by Stephen Brookfield (1995), combined with Tuckman’s (1965) and Tuckman and Jensen’s (1977) group development sequence, is the option used here to assess group development. The present research is guided by the following research question: What evidence of Tuckman’s (1965) and Tuckman and Jensen’s (1977) group development sequence can be found in the CIQ responses of online adult learners?

### *Method*

A qualitative multi-case study was used for this research. Multi-case studies are described by Bogdan and Biklen (2003) as “two or more subjects, settings, or depositories of data” (p. 63). Stake (2000) calls this design a collective case study and refers to Herriott and Firestone’s (1983) multi-site qualitative research in defining the term. The use of the multi-case study approach allowed for the opportunity to compare the findings in one setting with another, as will be expressed in the data analysis and findings sections.

### *Study Context*

The study context was a sample of two sixteen-week online, asynchronous graduate courses on adult teaching strategies. The courses were conducted in Spring 2004 and Spring 2005 at a research-intensive university located in Midwestern United States. The professor is a European-American woman with a strong background in online learning communities and group dynamics. She and her graduate assistant (GA), an African-American woman, were co-researchers on this study.

The course studied is offered annually in an asynchronous format online using the Blackboard™ learning management system (LMS) for delivery, and it is offered every other year face-to-face. The online

course consisted of forums for students to access discussions, post assignments, and respond to inquiries. For much of the course, the students were placed in small groups of four to six people within designated forums with restricted access. Most of the actual discussion about course content occurred in the small groups. The large group convened throughout the course to discuss policies and processes, as well as to report out about the small group discussion and individual projects. Each week members of the small group rotated roles, which were described below by the professor:

1. *Convener/Facilitator*: This person will pose the questions for the week and initiate discussion with a few questions from the reading. As the members respond to the questions, the facilitator moderates and extends the discussion by posing new questions on issues that arise out of the dialogue. Additionally, the facilitator may refer back to the readings to initiate discussion on another aspect of the topic. Facilitators are responsible for keeping an active and involved discussion going throughout the week.
2. *Process Observer*: This person will monitor the group’s dynamics. Process observers are responsible for making sure that everyone is participating in the discussion, that there is evenness in participation, and that the discussion maintains a collegial and helpful tone. In a sense, the process observer also functions as a parliamentarian, suggesting when discussion is off track and bringing a sense of order and consistency at critical moments. At the end of each week, the process observer provides feedback to the group in a short paragraph. This paragraph of process will be posted for the small group and large group to see.
3. *Summarizer*: This person will look for key themes that emerge in the conversation, keeping track of areas of consensus and disagreement among group members. When presenting the summary of the discussion, the summarizer is responsible for tying together the whole discussion and providing the learners with a brief review of the main issues, the key points, and any conclusions to which the group came. This summary will be posted both in the small group and in the large group for everyone to see.

In addition to the regular content work for the courses, the students completed Brookfield’s (1995) CIQ weekly. The professor designed the use of CIQs as

one of the regular assignments that students were required to complete and submit in order for the professor to stay in tune with the students' reflections on the class and their role as participants in the online format. An online, modified version of the CIQ was created, which follows:

In order to facilitate a better learning environment, we will use tools (developed by Stephen Brookfield, 1995) to consistently evaluate this course. The Critical Incident Questionnaire (CIQ) will be completed at end of each week in specific discussion board areas. Please answer questions thoughtfully. Be honest and submit your responses anonymously.

Questions include:

- a. At what moment in the class this week did you feel most engaged with what was happening?
- b. At what moment in the class this week did you feel most distanced from what was happening?
- c. What action that anyone (teacher or student) took in class this week did you find most affirming and helpful?
- d. What action that anyone (teacher or student) took in class this week did you find most puzzling or confusing?
- e. What about the class this week surprised you the most? (This could be something about your own reactions to what went on, or something that someone did, or anything else that occurs to you.) (Brookfield, 1995, p. 115)

All comments are anonymous, but posted for the class to see. The instructor will read all the comments. Themes will be summarized and shared back with the students. Not all suggestions will be acted upon, but all will be considered.

#### *Data Sources*

As a source of data, the anonymous CIQ responses were archived in batch file format. The Blackboard LMS has the function of recording the responses of the students if the students selected the *Post message as Anonymous* option, which they were requested to do in the instructions of the CIQ. The anonymous feature on the Blackboard LMS makes identifying the author impossible not only to the users (i.e., students, professors, visitors), but also the

Blackboard administrators. Only the time and date of each response was recorded.

#### *The Participants*

The online course conducted in 2004 included ten men and ten women, five of which were doctoral students and fifteen of which were master's degree students. The online course conducted in 2005 included ten men and eleven women, including four doctoral students and sixteen master's degree students. The course was required for all master's degree students and was optional for all doctoral degree students.

#### *Data Analysis Process*

Two Microsoft Excel spreadsheets were created to house the raw data from the classes, and each was organized independently. Process codes, "words and phrases that facilitated categorizing sequences of events, changes over time, or passages from one kind of status to another" (Bogdan & Biklen, 2003, p.164), for each portion of Tuckman's (1965) and Tuckman and Jensen's (1977) group development sequence were created and a respective color assigned to each portion of sequence for easy of coding. Each depository of data was printed and assembled into large paper documents. Each question's response was then compared to the group development sequence, and the process codes were developed and subjected to an immediate sort by the assigning of a color code. Although initial, this data interpretation began "explaining and framing...ideas in relation to [the group development sequence] theory, other scholarship, and action, as well as showing why...findings are important and making them understandable" (Bogdan & Biklen, 2003, p.147). This immediate sort unearthed evidence of the group development sequence. This "initial or emerging theory [was] tested against [all] data that [was] systematically collected, [applying what] has been called the constant comparative method" (Mertens, 1998, p. 171). Multiple other sorts narrowed and winnowed the data to provide a clear sense of the group development sequence. The data were reviewed by both researchers, and selections of representative statements were made.

#### *Findings and Analysis*

The CIQs reflected evidence of Tuckman's (1965) and Tuckman and Jensen's (1977) group development sequence. Each portion of the sequence was clearly evident in both courses.

### *Forming*

The first portion of the sequence, forming, involved a testing of boundaries of both interpersonal and task behaviors. Forming occurred during weeks 1-3 for both courses, and the reflections were a result of responses to questions 1 and 3 of the CIQ. Issues and themes that emerged within this stage included: feeling intimidated, acclimating to the course, developing roles, developing ground rules, becoming oriented to the software, understanding the syllabus, being affirmed by the professor, and shaping leadership within the group. This portion of the sequence was evident in the 2004 course by a participant who stated:

One of my group members and I were volleying an attachment back and forth. We were trying to develop a group rotation schedule so that we would all know our roles in advance and could prepare. As anything, it took a few tries to get it right and I found his willingness to collaborate very affirming.

In this response, the participant discussed specific task behaviors required for the course, sending and receiving attachments in an online environment, and the establishment of a group schedule, both of which are evidence of forming in Tuckman's (1965) group development sequence. The participant wanted to develop and test boundaries with not only the task behavior of sending the attachment, but with the new interpersonal relationship with a group member.

While testing boundaries of both interpersonal and task behaviors in the forming stage was paramount, forming also established the dependency relationship on a leader, in this case, the professor. Two participants in the 2004 course stated:

I think the group as a whole and [the professor] in particular were helpful this week. The group was really engaged.

I found most affirming and helpful [the professor's] interactions with our small group discussion. I felt that she was truly engaging with what we were discussing.

The forming stage of the group development sequence also included dependence on other group members or pre-existing standards. For example, two participants in the 2005 course reflected:

Opening the discussion board and finding that someone else had taken the lead for the group. [sic] sounds strange, but over the last year I have assumed this role several times in 'group work' and found it to be very distracting to what I wanted to

learn from the class. I breathed a sigh of relief because I felt like this will be a great opportunity to really learn from this class.

I felt the action most affirming and helpful was when a person in our small group took the lead in getting us organized. As a couple other people have commented, this is sometimes a role I find myself in, and although I like leading a discussion group, when it is with a new group I am unfamiliar with [,] I feel uncomfortable charging in and taking over. It is nice to have someone who is not uncomfortable with that kind of task!

The forming stage was highly developed in the online environment for both of the courses. The participants tested boundaries on tasks and interpersonal relationships. They also demonstrated their dependence not only on the professor of the course, but on one another.

### *Storming*

The storming stage was characterized by conflict and polarization around interpersonal issues. Interestingly, storming occurred throughout the full course session, weeks 1-16, although it did diminish toward the end of the semester for both courses. The storming reflections were mainly a result of responses to questions 2 and 4 of the CIQ that deal with being distanced, puzzled, or confused. Themes that emerged in this stage were related to family conflicts, work conflicts, issues of purchasing the textbooks, accessibility issues, the time demands, not having timely feedback from group members, misunderstanding the syllabus, time management, and group roles. CIQs which captured the storming stage occurred in both courses. A participant in the 2004 course noted:

I was very surprised at how many of the students were stressed, frustrated, and out of sorts because the books had not arrived. In life, things often go awry, but it is definitely not a showstopper. In teaching adults, flexibility is the operative word. You may come in prepared to follow an outline that is totally out of sync with the class. What happens when life throws you a curve? I think the class just had a practical application of teaching adults. It was interesting how some solved the problem by purchasing books online, elsewhere. It was great that one student shared that a teacher discount could be a possibility.

Additionally, a participant in the 2005 course noted:

Not to offend, but I was surprised about pre-existing assumptions that I've read in some of the discussions. While I think it's helpful to hear about lessons learned, I'm trying to imagine a student standing up in front of a class and saying, "The last time I took a class like this nobody participated; it was awful." I doubt it would go over well. For me, hearing those kinds of experiences sets a tone and can increase the stress of starting a class.

For the participants in the 2004 course, the participant response seemed to be more of a reprimand toward interpersonal behavior of group members and other students, although the absence of books was the primary issue of concern. Additionally, for the 2005 participant, polarization was described in the reflection with a stern tone of reprimand.

Storming was also characterized by resistance to group influence and task requirements. For example, a participant in the 2004 course stated:

I felt most distanced at the loss of one of our group members. Just as I felt that I understood how the small groups work, we now have to adapt to a new structure. Because we spend all of our time online in the small groups, we have less time and opportunity to interact with the entire class. I would like to possibly do small group work for three weeks and possibly interact as a class for one week. I really like the small group discussions, which has the benefit of allowing everyone to provide input. But I would like to interact as a whole class at least two or three weeks of the remaining class.

In addition, two participants in the 2005 course noted:

A couple of times this week I have been thrown off track by trying to figure out group roles and completely understanding them. Just when I thought I knew everything there was to know I would find something else out. I think I am on track now. I just received my books so I cannot get distracted this weekend because I will need to read, read, read.

Some member(s) of my group puzzled and confused me this week. There seems to be so much negativism (I observe this in our class in general, too!) towards group/team work. I admit that collaborative learning isn't my favored style of learning, either, but...at least I try to keep an open mind.

As can be seen in the storming stage, participants tried to make sense of the online environment while experiencing some difficulty with one another and expressing that frustration in their CIQ reflections. The anonymous nature of the CIQ also provides more opportunity for voicing concerns that they would not comfortably state in a face-to-face class.

### *Norming*

The norming stage was identified for developing group cohesiveness, evolving new standards, and adapting new roles. Norming occurred during weeks 3-7 for both courses, and the reflections were a result of responses to questions 1, 3, and 4 of the CIQ, referring to the level of engagement in the class, affirming and helpful actions, and actions that were puzzling or confusing.

At this stage, the themes included: developing trust, getting involved, establishing things in common with other classmates, feeling connected and comfortable, replying to posts, and offering suggestions and comments. Two participants in the 2004 course stated:

I think the groups are becoming more comfortable with each other and are starting to take more time to expand on the postings to better clarify thoughts/ideas.

Not really puzzled or confused. I think as the semester has progressed, we are all much better at expressing ourselves. Sometimes, in the beginning, I think we neglected to realize that we must be very thorough in our explanations on a discussion board because we can't rely on other means of communication (i.e. facial expressions, tone, etc.)

Additionally, a participant in the 2005 course stated:

I felt most affirmed when I took a look at what other groups were doing this first week and feeling like my group was on target. It was very nice to have people respond to or confirm my thoughts when I have written my answers to the small group questions.

The norming stage brought about trust in the group members, and more intimate or personal opinions were more easily expressed. For example, participants in the 2005 course stated:

I was surprised that so many of us have similar interests and connections. It gives me comfort to know this and the personal connection needed to

gain trust with my peers. Knowing a little bit of something about everyone motivates me to explore what is "out there" for me by tapping into their experiences. Thanks to everyone for your intense communication this past week!! :)

It seems that our group is becoming more transparent, or rather we are getting better at knowing each other. It feels like I am having a real discussion rather than just posting stuff online.

### *Performing*

In the performing stage, the groups were ready to accomplish their tasks, and the roles were adapted to the particular tasks as energy was channeled to the groups' goals. By this time, they had successfully formed, stormed, normed, and were now very ready to perform. Performing occurred during weeks 4-16 for both courses. The reflections were a result of responses to question 1 regard engagement in the class and to question 4 concerning puzzlement and confusion. At this stage, the themes included: finishing the assignments, getting into the groove, and finally understanding how to participate in the course. Additionally, many of the responses at this point were non-responses including: "nothing," "nothing this week," or "none". Participants in the 2004 course attested directly to performance by stating:

A group member took time to clear up a concept from our reading that confused me. Not only did I admire the fact that he/she knew concept well enough to help, but that he/she took the time to answer my question and clear up my confusion.

As always, I'm impressed when a fellow group member takes the time to make his/her point more clear by further explanation. Our group is at the point where we are doing this automatically without someone asking us to clarify.

In addition, participants in the 2005 course reflected:

Monday morning. One team member quickly answered all of the discussion questions and it set the stage for the rest of us.

Our group continues to stay involved in discussion throughout the week, with comments that help clarify and express so many different perspectives. The discussion usually takes me back to the readings for things I didn't pick up on at first, so it helps me cover the assignments more thoroughly.

### *Adjourning*

While not one of the original four stages, Tuckman and Jensen (1977) added adjourning to the group development sequence. This stage completed the tasks, dissolved the group, and terminated the roles. Sometimes mourning was part of this stage, and also stress occurred when the group was adjourned prematurely (Smith, M. K., 2005). Adjourning occurred during weeks 12-16 for both courses and the reflections were a result of responses to question 5 of the CIQ. Themes within this stage included: disbelief at the end of the semester, a sigh of relief, feelings of sadness, and a decline of postings. As the courses ended, all the CIQ postings dwindled, and a few and participants in the 2004 course documented reflections such as these to mark the end of the course:

I'm just surprised at how much more I enjoy this course than I did at the beginning of the semester. At first I groaned about having to answer all those questions all the time. It seemed like silly, busy work to me. I've totally changed my mind.

The feeling of sadness surprised me as this class draws to an end. This was a very enjoyable and educational experience. I will miss this and hope future class will be as rewarding.

In addition, participants in the 2005 course had these reflections:

The pace of conversation for our group was much slower, and not nearly as much conversation in total. I can't decide if it's because the topics are more specific so don't generate as much conversation or if we are all getting to the end-of-the-semester-run-out-of-things-to-say mode. :)

Realizing that we are almost complete! Hurrah!

### *Conclusion*

The dynamics and rhythms tracked using Stephen Brookfield's (1995) Critical Incident Questionnaire included each phase of Tuckman's (1965) and Tuckman and Jensen's (1977) group development sequence for both courses. Therefore, the findings answer the research question guiding this study, that yes, there was evidence of Tuckman's (1965) and Tuckman and Jensen's (1977) group development sequence found in the CIQ responses of online adult learners.

There is much applicability for these findings related to critical reflection, group development, online

environment, and adult learning. This study has opened a wide variety of opportunities to compare and contrast the responses to the group development sequence to particular responses of Brookfield's CIQ. For example, which CIQ questions prompted certain portions of the group development sequence? Or, at what point in the course was a specific portion of the group development sequence noted? For example, which week of the course did the group meet certain stages of the group development sequence? Was their progression constant, or was there regression? As simply as Tuckman's (1965) and Tuckman and Jensen's (1977) group development sequence was tested against these data, other group development theories could have been tested against the same data, or similar data, which leaves future possibilities for further studies in the search for other settings and subjects that can be associable.

This study determined that critical reflection was especially important when facilitating adults in the online environment. When students are allowed to provide those reflections, they provide evidence of group development and a feeling of ownership in the class. Since this study intended to investigate the use and value of critical reflection and reflective practice through student responses when teaching in the online environment, we deemed it important to provide examples of those reflections. The use of Brookfield's (1995) CIQ was a useful way to observe group dynamics, and the use of the multi-case study research design assisted in demonstrating and comparing the group development sequence in two depositories of data.

The critical reflection espoused in these online environments was an effective way to glean feedback for instructional purposes, as advanced by Conrad and Donaldson (2004) and Hanna, Glowacki-Dudka, and Conceição-Runlee (2000); to make course adaptations, as advanced by Valentine (1997); and to track experiences within the course as advanced by Conrad and Donaldson (2004). However, as this study contends, those reflections can unearth evidence of group development as defined by Tuckman (1965) and Tuckman and Jensen (1977). What then, does this mean for practitioners?

Critical reflection is particularly important for an online environment. While our knowledge of the online environment continues to grow, so does our need to become familiar with tools to glean feedback from that environment. We have the responsibility to our students to challenge ourselves to be willing to accept critically reflective feedback. Since we are aware that reflection can provide insight on teaching and learning, tools such as the CIQ in the online environment can help to bridge the reflection gap.

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## Games as an Interactive Classroom Technique: Perceptions of Corporate Trainers, College Instructors and Students

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This two-part study investigates perceptions of interactive classroom teaching techniques for adult learning. In the first part of the study 62 college faculty members and 45 corporate trainers were surveyed about their teaching and training methods. The survey had two main objectives: to determine rates of classroom techniques used, and to determine influences on teaching styles. Trainers used a greater variety of teaching techniques in their presentations, such as visuals and interactive exercises including games, and spent less time on lecturing than their college faculty counterparts. Both groups identified their temperament as the main influence on their teaching style. Several other influences on teaching style were cited with similar frequency by the two groups, but trainers reported using mentors and instructors' guides more frequently than college instructors did. In the second part of the study, five faculty members were mentored to change traditional lectures to interactive games. A review of their perceptions of success and difficulty in using such activities in the college classroom, their students' perceptions of the exercise, and student performance identified both benefits and costs. Suggestions are made for strategies to successfully implement games in the college classroom, based on consideration of these benefits and costs and the survey results.

Student motivation and engagement are an ongoing challenge for classroom instructors and the basis of various research endeavors (Glynn et al., 2005). A substantial body of literature indicates that the use of non-traditional interventions, such as games, simulations, multimedia instruction and interactive activities are valuable teaching methods. For example, reporting on a study on student motivation and learning, Nemerow (1996) concludes that, "Although playing games in the classroom does not solve all of the problems with education, it can be a useful tool, one of many different methods and techniques used to involve students with their learning"(p. 365).

The arguments for using active learning in the classroom are clear. First, for the past century, it has been known that there is an optimal level of arousal for peak performance (see Yerkes & Dodson, 1908). The learner passively sitting in a lecture, with no stake or interest in the information, does not reach the level of stimulation required to promote effort. Moving around a room, participating in a contest, or simply talking to other students can raise the level of activity to a point where a student is more alert and attentive to the activities of the class. Active learning techniques divide the lecture so that less material falls prey to the serial position effect—dips in learning of material in the middle of a lecture (Johnston & Calhoun, 1969).

Using activities and games in class encourages active learning, as well as collaboration, and interactivity (Reuben, 1999). Participation in an activity requires the use of content by the learner; thus ensuring students are working with the ideas that are being taught, and applying them. In lecture situations, students are assumed to be doing this on their own. Proponents of adult learning theory assert that students

must be actively involved in their learning, that they must get feedback, and that they should practice sharing, reflecting, and generalizing in small group activities (Speck, 1996). For these reasons, several studies focus on the recall and performance benefits from active learning strategies (Angelo & Cross, 1993; Bonwell, 1996; Butler, Phillmann, & Smart 2001; Peterson, Swing, Braverman, & Buss, 1982; Pintrich & deGroot, 1990).

Few studies have actually measured the impact of games on student learning, but one large study by Hake (1998) examined student performance with interactive engagement and traditional lecture methods in introductory physics courses. He compared 48 classes teaching introductory physics using interactive engagement with 14 classes using traditional lecture methods. Courses classified as having interactive engagement formats contained hands-on activities with discussions involving peers and teachers. Traditional courses had a passive lecture format. In a pre- and post-test comparison of conceptual knowledge, considerably larger gains in conceptual knowledge were reported for the interactive courses, regardless of whether the course was at high school, college, or university level. Furthermore, in some of the interactive engagement format classes students demonstrated more advanced problem solving. Although causality cannot be completely isolated in this nonequivalent groups design, the large number of students examined, over 6,500, and the consistency of the positive effect of engagement, present a persuasive argument that resonates with the theoretical rationale for using activities in the classroom.

In addition to memory and performance benefits, games and interactive learning methods have important



social benefits for students. These activities allow students to practice using the vocabulary of the discipline, which social constructivists purport to be central to learning (Kelly & Green, 1998; Vygotsky, 1962). Feedback from other students can show that participating with the material in the field is acceptable, and also provides positive reinforcement for working with others to accomplish the goal of the activity. Also, stronger students model the ways that they work with the material for students with less developed study habits. The in-class activities can persuade students to rely on each other more as they study outside of class. Such a context for learning supports the development of social competence (Huyen & Nga, 2003; Nemerow, 1996; Schwartzman, 1997). Games provide structure for interactions, reward students for collaborating and problem solving (Schwartzman, 1997), and promote cooperative learning, "individual accountability, positive interdependence, and the need for group processing and feedback," (Millis & Cottell, 1998, p.149). Whereas students' self-chosen social groups are often homogenous, with members of similar backgrounds and interests, the classroom can provide an opportunity to practice working and learning in heterogeneous teams. In addition to promoting diverse interactions among students, games provide a way to reach and engage students who may have a variety of learning styles. Individual investigations of learning styles support this perception (Franklin, Peat, & Lewis, 2003).

The memory, performance and social benefits of interactive learning techniques contribute to a fourth rationale for including games and simulations in the classroom—improved transfer of learning. Instructors assume that students will use what they learn in other contexts, but this assumption may be false (see Barnett & Ceci, 2002). Students need to have learned the material and be supported in the social norms of applying it, but for students to transfer what they learn, they also need to practice the skill of abstracting what they know and applying it (Alexander & Murphy, 1999). Students often have particular difficulty in far transfer tasks, where they have to use information in a context very different from the learning environment. Games promote transfer because they require student participation and active involvement with the material within a rich context (Cruikshank & Telfer, 2001). Creating opportunities for students to practice applying the material, such as in a game or simulation, can bridge the distance between learning concepts presented in a classroom and using that information to solve a problem met outside of the school.

These rationales, which support the use of games and other active learning techniques in the classroom, have a long history (see Cruikshank & Telfer, 2001 for a review). Despite this, they may be underused in

college classrooms where the lecture continues to be the norm (Bok, 2005). Wright, Betteridge and Buckby (1984) comment, "If it is accepted that games can provide intense and meaningful practice of language, then they must be regarded as *central* to a teacher's repertoire. They are thus not for use solely on wet days and at the end of term!" (p.1). Acceptance of games as a learning tool, rather than as a time filler, is essential if their full potential is to be realized. A survey of current business simulation game users, former users and never users among business faculty across disciplines concludes that the number of never users (52.3%) is higher than that of the current users and former users combined (Faria & Wellington, 2004). This is surprising, given the long history of the use of games as an instructional tool in the discipline of business. Despite the potential benefits for memory, performance, social competence, and transfer of learning, the use of games and other experience-based activities continues to provoke debate.

### *Corporate Training Trends*

Corporate training highlights the learning potential of games and advocates using such non-conventional approaches consistently as a training tool. For example, Edward Scannell, a professional development author effectively captures the appeal of games as an instructional tool in corporate training, "People are not content to be 'talked at'. They want to take an active role in their own learning. Games get people involved and clearly enhances their learning," ("Are Training Games a Waste of Time?" 1996, p. 26). Wenzler and Cartier (1999) make an effective case for the use of games in organizational learning by asserting that "Games and simulations help organizations develop symbolic thinking and gestalt understanding; help them create memories of the future; enable shared experiences and the building of shared intelligence; and, possibly most important, develop their members' motivation and confidence to act," (p. 375). A number of books and manuals (e.g., Pike & Busse, 1995; Stolovich & Keeps, 2002; Thiagarajan, 2003) advocate this kind of learner or trainee involvement.

In corporate training, active learning with plenty of student involvement is the norm, and games and fun are even viewed as prerequisites for learning. For example, one training consultant asserts "Learning is directly proportional to the amount of fun you have," (Pike & Busse, 1995, p. V). In opposition to this attitude, Gaudart (1999) states that some college instructors, especially those instructed in teacher-centered classrooms, have a different assumption, "Many [teachers] still feel that if learners are laughing and having fun, they could not be learning very much," (p. 289). If these views are representative of trainers and

professors, then these opposing attitudes may predetermine some of their pedagogical choices and strategies.

Our experiences suggest that the corporate training model of active learning is quite different from the instructional practices of college professors. Teaching and learning conferences present many active learning innovations, and the field of scholarship of teaching and learning embraces the concept of active learning. However, a focus on active learning is still not standard practice in many college classrooms (Bok, 2005) and the movement away from traditional liberal education toward corporate practice brings concern to many (e.g., Lomas, 1997).

The goals of college instruction and corporate training differ in some ways: building knowledge versus skill, assessing learning versus job return on investment, and creating better citizens versus better employees. Nonetheless, the main goals of trainers and college instructors overlap: creating lifelong learners, changing behaviors, and creating learning that can be applied beyond the immediate classroom. By ignoring the move toward active learning, academia misses an opportunity to increase student learning and our students are less prepared for this kind of learning when they encounter it later in their careers. Shared lessons from academia and corporate training could form a base of research that investigates if, how, and under what conditions, active learning techniques enhance student learning. This study is a first step in this direction.

In an attempt to better understand the differences between the corporate training classroom and the college classroom, this study compares the classroom techniques of college instructors and corporate trainers and assesses the effectiveness of games as an active learning classroom technique to engage learners. We surveyed members of both groups about their instructional style, the factors influencing their style and the amount of time spent lecturing. In a second part of the study, five college professors volunteered to replace a section of traditional lecture with an interactive classroom exercise. Their experiences, and their students' reactions, inform discussion on the benefits and the limitations of the active learning approach.

## Method

### *Participants*

For the survey study, 62 instructors from a 2-year regional campus of a state college/university participated along with a convenience sample of 45 corporate trainers from companies both big and small, including an airline, a paper company, and an HR consulting organization. Additionally, five college

faculty members from different disciplines (Math, Psychology, English, Arts & Visual Communication, and Nursing) volunteered to replace a section of lecture in their classrooms with a new interactive game. Afterwards, the five instructors and their students ( $n = 68$ ) offered their perceptions of the new technique.

### *Survey Study*

The 10-minute questionnaire was completed anonymously for no compensation (See Appendix). Participants, college instructors and corporate trainers, were asked to:

- Check the frequency with which they use a variety of classroom methods on a Likert Scale ranging from 1 (*Never*) to 5 (*Always*). The methods included visual presentation stimuli, activities (e.g., PowerPoint, CDs, Films), group activities (e.g., mock debates, case studies, role play, peer review, games), or other techniques (e.g., props, music, guest speakers, field trips, flip charting responses).
- Estimate the proportion of a typical class that they spent speaking and lecturing.
- Rate the impact of a variety of factors on their classroom skills, including: temperament/personality, instructor models, formal training, workshops, peers, mentoring, and trial and error.
- Describe an innovative technique that they use in the classroom
- Indicate their years of experience in training or teaching.

Trainer and professor responses to the survey were compared using analysis of variance (one-way ANOVA).

### *Introducing a New Game*

Five faculty members volunteered to work with the researchers to develop new games that would replace traditional lectures in their courses. The games involved activities such as group crossword puzzles, word scrambles, and team concept matches. After conducting the game and assessing student learning, faculty completed interviews on their experiences. These interviews were 20 to 30 minutes long and consisted of a standard set of questions including:

- "Describe previous active learning techniques that you've used."
- "How did the game impact your classroom?" (With prompts for interaction, performance, engagement, and retention.)

- “How did you feel about using games in your class?”
- “Compare the workload to that of a traditional lecture?”
- “What do you see as the pros and cons of using games in the classroom?”

Using an anonymous survey, students of participating faculty were asked if they learned anything, if the game was a waste of time, if the game accomplished its objectives, if the students enjoyed the game, and if students wished more faculty used games like this one. Students also estimated the proportion of time that they would prefer to have allocated to lectures and group activities or other in-class activities. Open-ended items asked about their preferences for group activities and games in class.

## Results

### *Classroom Technique Usage*

Corporate trainers reported using multimodal techniques and active learning strategies more frequently than the college professors surveyed (see Table 1). There were significant differences between the two groups in ratings of PowerPoint usage ( $F[1,106] = 9.49, p = .003$ ), other visual aids ( $F[1,103] = 8.28, p = .005$ ), CD-ROMs or electronic media

( $F[1,106] = 7.27, p = .008$ ), ice breakers ( $F[1,105] = 17.08, p = .00$ ), group work ( $F[1,106] = 7.27, p = .008$ ), flip charting responses ( $F(1, 106) = 80.7, p = .00$ ), the use of games ( $F[1,105] = 15.27, p = .00$ ), the use of props ( $F[1,103] = 12.21, p = .001$ ), and role play,  $F(1,106) = 20.34, p = .00$ .

There was also a difference in the amount of class time that each group reported lecturing or speaking, with corporate trainers lecturing significantly less ( $M = 56.44\%$ ,  $SD = 26.04$ ) than professors ( $M = 67.10\%$ ,  $SD = 22.53$ ),  $F(1,103) = 5.03, p = .03$ .

### *Factors Affecting Classroom Skills*

Table 2 lists the average rating of college instructors and corporate trainers for the factors affecting their classroom skills. Both groups reported that the most influential factor in their teaching is their temperament or personality. For trainers, the next two influences were mentoring and the use of instructors' manuals, both of which differed significantly from instructors' ratings, ( $F[1,96] = 31.18, p = .00$  and  $F[1,97] = 87.69, p = .00$ ) respectively. Trainers relied more on mentors than college instructors did. Trainers were also more influenced by instructors' manuals than were college instructors. Both groups reported relying on trial and error, workshops, formal training, peers, and student evaluations in similar ways.

TABLE 1  
Frequency of Use of Classroom Activities by Trainers and Professors

Technique	Trainers ( $n = 45$ )		Professors ( $n = 62$ )	
	M	SD	M	SD
PowerPoint visuals*	3.70	0.94	2.87	1.62
Other visual aids*	4.00	0.81	3.41	1.74
Films or videos	3.05	0.65	2.82	1.14
CD-ROMs/electronic media*	2.89	0.92	2.31	1.24
Ice breakers*	3.87	1.02	2.95	1.22
Group work*	3.90	0.94	3.32	1.21
Mock debates	1.84	0.95	1.76	1.10
Case studies	3.09	1.07	3.05	1.21
Flip charting responses*	3.78	1.09	1.85	1.10
Games*	3.20	0.83	2.44	1.09
Props*	3.31	0.95	2.50	1.32
Student peer reviews	2.56	1.04	2.12	1.33
Music*	2.18	0.91	1.54	0.83
Role play*	2.00	1.07	2.96	1.12
Guest speakers	2.52	1.01	2.24	0.99
Field Trips	2.13	0.87	1.79	1.07
Demonstrations	3.40	0.94	2.98	1.23

*Note.* One-way ANOVAs employed the Bonferroni adjustment for multiple comparisons to reduce the likelihood of a Type I error. For all means, 1 = never to 5 = always.

\* $p < .05$ .

TABLE 2  
Rating of Impact of Factors on Classroom Skills by Trainers and Professors\*

	Trainers ( <i>n</i> = 45)		Professors ( <i>n</i> = 62)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Own temperament/personality	4.32	0.56	4.29	0.70
Own effective profs/trainers	4.02	0.67	3.84	0.90
Formal training on classroom skills	3.41	0.92	3.09	1.25
Workshops/Seminars	3.36	0.89	3.24	0.98
Professional conferences	3.10	1.03	3.12	1.10
Observing your peers	3.39	0.95	3.16	0.93
Mentoring *	4.18	0.58	2.98	1.33
Trial and error of techniques over time	3.98	0.94	4.03	0.96
Facilitator's guides and manuals	4.09	0.87	2.21	1.07
Trainee (student) evaluations	3.33	0.92	3.32	0.83

*Note.* One-way ANOVAs included Bonferroni adjustments for familywise error. For all means, 1 = no impact to 5 = very much impact.

\*  $p < .05$ .

Responding faculty members were in their jobs significantly longer ( $M = 14.03$ ,  $SD = 9.85$ ) than the corporate trainers ( $M = 9.20$ ,  $SD = 6.29$ ),  $F(1,98) = 7.90$ ,  $p = .01$ .

#### *Student Perceptions of Games in the Classroom*

The students ( $n = 68$ ) of the five instructors who used an interactive game to replace a lecture rated the experience as generally positive. Students rated the game on 1(low rating) to 5 (high rating) Likert scales for how much they learned ( $M = 3.71$ ,  $SD = .74$ ), whether it was a waste of time ( $M = 2.0$ ,  $SD = .91$ ), whether the game accomplished its goal ( $M = 3.93$ ,  $SD = .76$ ), their enjoyment of the game ( $M = 3.95$ ,  $SD = .86$ ), and whether they wished other instructors would include similar activities ( $M = 3.75$ ,  $SD = .92$ ).

Students said that their preference for time allocation in class was on average, 51.48% ( $SD = 20.66$ ) lecture, 38.96% ( $SD = 21.35$ ) group activities and 11.63% ( $SD = 11.66$ ) for other activities which were most often films, field trips guest lectures and time to work or meet with the instructor.

Their comments were more mixed than the numerical ratings, including, "Games and activities are silly and degrading. As a college student, I found it childish." and "You can't always rely on your peers to know things you'll need for the activities." Other comments emphasized the need for variety, that lecture can be boring and redundant with the book, and that activities appeal to different learning styles, e.g., "I am a very visual and hands-on learner, so I learn more when we do group activities or when the lecture involves visual aids."

#### *Faculty Comments on Using New Interactive Exercises*

The five faculty members who replaced a section of lecture with a game reported that the biggest hurdle was finding the time to create the game the first time, "It takes more time than to lecture over things you already know." However, the writing instructor reported that, "the use of games is not necessarily more work [than using lecture]." They reported some concern about student resistance.

Math students are used to working problems, going over ideas, and there's a certain math mindset. There's instructor and student resistance when they are expected to run it certain ways. I have ideas and think 'they'll riot on me if I try that.' If I step out of the box, I don't know how they would react.

The instructors expressed concern that the students would resist active participation and feel that the faculty members were shirking their duty. In addition, they were apprehensive about how to deal with under-prepared students and class management. However, these concerns were balanced by positive reactions such as, "The application that games offer of information learned helps in better retention," and "The game was worth the time." All participating faculty reported an increase in student engagement and interaction as a result of the inclusion of a game in the classroom.

#### Discussion

This study illustrated some striking differences between workplace training classroom activities and

learning in the college classroom. The use of visuals, other multimedia techniques, props, music is more common in workplace settings. Trainers use more active learning strategies than do college professors, including group work, role play or games. Both groups indicated that personality was the biggest determinant of their teaching, followed by mentors for trainers and trial and error for professors. Mentoring and instructors' manuals influenced trainers more than faculty members.

Students responded positively to the new active learning exercises that replaced traditional lecture in five classes, indicating that they learned a lot, it was not a waste of their time, that the activity was enjoyable, accomplished its goal, and they wished more faculty members used such activities.

When students were asked the amount of time they would prefer to have in the traditional lecture format, their average response was 51%. Interestingly, their responses were closer to the amount of time trainers actually lecture (56%) than that of professors, who spend 67% of class time lecturing. One of our faculty interviewees expressed hesitation at incorporating active learning strategies and games, worrying that students are expecting to be taught or told and should "get their money's worth." However, in the survey, the students expressed a preference for less time spent lecturing than instructors report lecturing, so these instructors' concerns may have been unwarranted.

Future studies are needed to fully explore the impact of active learning on student learning. One difficulty in this type of study is employing appropriate control groups, because once instructors start to implement this type of strategy in classes, they are often reluctant to present one section with a regular lecture. Obtaining this comparison data is crucial to demonstrating the value of this pedagogical approach in order to persuade faculty members who are firmly entrenched in the talk-and-chalk tradition that the initial effort of developing games or other active learning strategies has payoffs in student learning.

Even within the business classrooms, where gaming and simulation are commonly used (Reuben, 1999), assessment is challenging, for example Keys (1977) reviewed twelve studies that examined learning outcomes comparing traditional classrooms to gaming or simulation exercises. Although gaming had more positive results than traditional courses, the results were somewhat inconsistent. They varied with the type of measure used, whether the outcome was a multiple choice, essay or case study, and the quantity of instructor participation. These factors all affected the results. More recently, Gosen and Washbush (2004) evaluated 39 studies in which simulations and experiential learning were assessed. They state that early advocacy of simulations relied on performance

within the activity, not necessarily learning. Based on their criteria, only three of the studies reviewed had sound research designs, used measures of learning rather than affect, tied outcomes to learning goals, and used validated outcome measures. This led to their conclusion that, "We can probably say that there is evidence that these approaches [simulations and experiential learning] are effective, but the studies showing these results do not meet the highest of research design and measurement standards. Thus, we believe any conclusion about them must be tentative," (p. 284). Even so, much literature examines gaming and simulation in the business classroom with generally positive results, for example a large study with over 2,000 participants, showed that gaming is valid as its results mimic some of the main principles in the field (Faria & Wellington, 2005). Nonetheless, challenges in study design may deter some instructors from using alternate methods, if lecture is their discipline's primary approach.

It may be that it is not persuasion and effort that could bring a traditional lecturer to use active learning. Disciplines have specific norms for the amount of active learning expected. This is demonstrated at interdisciplinary conferences in which some attendees are appalled that others just read papers, and others feel it is silly to participate in activities. In this study, both trainers and college instructors reported that their own temperaments and personality were the main factors influencing their classroom methods. If personality predicts classroom methods, and if facilitating active learning involves an entirely different skill set than lecturing, then more time and energy should go into selecting faculty into teaching careers who are learner-focused and embrace effective alternate methods. Indeed content knowledge is just one factor in hiring corporate trainers, but it may be the main determinant of obtaining a job in college settings. Future studies should examine the root of hesitations toward teaching with active methods further, to determine whether such hesitations are driven by personal style, lack of exposure to the methods, insufficient ability with the methods, or discipline-specific norms.

In addition to individual styles, resources may affect the technique usage rates in important ways. Corporate trainers may have skilled instructional designers providing well-developed activities, while college instructors, in the midst of a number of responsibilities, do not have time for development without assistance. Trainers may have access to other resources, which would contribute to the variety of modalities more frequently used, for example, classroom computer equipment, models and materials, whereas instructors may have a limited budget for innovative tools in the classroom. Lean and colleagues (2007) investigated perceived barriers to simulation

usage. Their surveys of staff perceptions revealed that overall, staff rated lack of resources, including course development time and support, to be the strongest barriers to using simulations. However, when comparing simulation users to non-users, beliefs about the suitability of the method are dominant. So, perceived challenges might not always relate to the factors that actually encourage or discourage technique usage. More research is needed to further investigate why some faculty do not use games and other active learning techniques in the classroom.

Student attitudes, and individual differences between students, also need exploration. In assessing students' preferences for lecture-time, group time or other uses of time in the classroom, ratings showed very large standard deviations, indicating that there was a wide range of preferences with many strong preferences for one or the other. Some studies suggest that the relationship between teaching style and adult learning is a function of the type of course (Conti, 1985). Therefore, research is needed to clarify which students benefit most from active learning and how to design activities to overcome some students' hesitations.

Faculty and student comments indicated that the actual design and implementation of the games in the classroom also influenced the way games were perceived by students in the classroom. Factors such as establishing clear objectives and goals, and matching the difficulty level of the game to the ability level of the students emerged as important considerations. The purpose of the game needs to be well defined and should provide appropriate challenge. The way a game is presented is often responsible for its eventual success. The delivery of clear instructions to avoid misunderstandings is crucial, as one of the participating faculty of our study affirmed during the interview. Debriefing, or the evaluation of results and events that actually take place in the game, is crucial to its success, and may be more important to concept understanding than the activity itself (Garris et al., 2002; Salies, 2002).

The role of the facilitator or game leader cannot be underestimated. Faculty participants of our study acknowledged the importance of creating teams or groups that are well balanced with ability. Matching the game to the ability level of the students in the context of established goals creates challenge and motivates the students to persist. Another important role for facilitators is that of managing expectations and presenting the advantages and disadvantages of games and active learning (Christopher, 1999). Without attending to these aspects of a classroom game, the learning may become secondary to the novelty and enjoyment.

The corporate model may be at odds with liberal education in many ways (see Lomas, 1997; Moser &

Seaman, 1987). However, both corporate trainers and college professors are invested in providing rich educational experiences and providing learning that transfers beyond the classroom. This study showed that corporate trainers reported employing active learning techniques to meet these goals more frequently than faculty did. Furthermore, the faculty who created new games to replace lectures in their classrooms, and their students, responded favorably. This suggests that faculty should increase the classroom time spent on interactive pedagogy, in order to prepare our students for the type of learning that they will encounter later in their professional lives.

Ultimately both groups, corporate trainers and college instructors, care about adult learners. Therefore, attention to research and trends within both the field of corporate and academic instruction may reveal valuable insights for improving learning.

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### Appendix Faculty Classroom Techniques

*Please rate the frequency that you use the following techniques/tools/methods in your classroom. (Check ✓ the appropriate box.)*

	1 Never	2 Seldom	3 Sometimes	4 Often	5 Always
1. PowerPoint visuals					
2. Other visual aids (overheads, posters, charts, etc.)					
3. Films or videos					
4. CD-Rom or other electronic media					
5. Ice breakers					
6. Group work					
7. Mock debates					
8. Case studies (problem-based learning)					
9. Flip-charting or listing of student responses to open-ended questions					
10. Games					
11. Props					
12. Student peer reviews of work					
13. Music					
14. Role Play					
15. Guest Speakers					
16. Field Trip					
17. Demonstrations					
18. Other (Please name)					
20. Other (Please name)					

21. What percent of the typical class are you (the instructor) speaking/lecturing? \_\_\_\_\_%

22. Describe the formal training in classroom presentation skills.


23. Rate the impact of the following on your classroom skills. (Check ✓ the appropriate box.)

	1 No impact	2 Little impact	3 Some impact	4 Much impact	5 Very much impact
a. Your temperament/personality					
b. Your effective teachers/professors					
c. Formal training on classroom skills (either college or training courses)					
d. Workshops/Seminars					
e. Professional conferences					
f. Reading books and articles on teaching and learning					

g. Observing your peers					
h. Mentoring from a master teacher					
i. Trial and error of techniques over time.					
j. Instructors' manuals from publishers					
k. Student Evaluations					
l. PTA (Primary Trait Assessment) Results					
m. RPT expectations					
n. Learning and Teaching Center					
o. Other...(Please name.) _____					

24. Describe one innovative teaching technique you have used in the classroom.


25. Years of experience teaching college\_\_\_\_\_

25. Circle one:    Part-time                      Full-time

26. Circle one:    Male                              Female

## Nurturing Supportive Learning Environments in Higher Education Through the Teaching of Study Skills: To Embed or Not to Embed?

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The transnational widening of participation in higher education (HE) and the concomitant emphasis on promoting successful progression and high retention are focusing attention on how best to create supportive learning environments in HE. Using a phenomenographic approach, we explore variance in how first year undergraduate students experience the learning of generic, subject-related and metacognitive skills within a study skills module integrated into education programs. The findings suggest responses ranging from a lack of engagement in the module to evidence of increased confidence, criticality, self-reflection and change as a learner. The conclusion posits alternative ways of promoting the learning of study skills, which, whilst potentially including all learners, bring significant ramifications for the professional development of university lecturers.

The renewed impetus for supporting the development of students' learning in higher education (HE) comes as a result of the impact of a range of factors affecting the profile of undergraduate students. In the United Kingdom (UK) the widening participation agenda is a key driver that is predicated on the premise that "we cannot afford to waste talent simply because of a reluctance to foster it" (HEFCE, 2006, p. 9). In seeking to address the discrepancies in the participation rates between different social classes, universities in the UK are offering fair access to disabled students, mature students and men and women from all ethnic backgrounds, who wish to participate in HE. This, coupled with the exigencies of the information revolution and demands from employers for autonomous learners, requires greater flexibility and innovation in learning and teaching in order to maximize the retention and successful completion of those who progress into HE.

As Hartley, Woods and Pill (2005, p. xiii) point out, recent HE initiatives in the UK have aimed at improving the quality of learning and teaching. At the sectoral level, the HE Academy, established in 2004, focuses on students and improving their learning. At the institutional level, the Higher Education Council for England (HEFCE) has invested £315 million to establish 74 Centres for Excellence in Teaching and Learning, "to recognise and reward specific areas of excellence in higher education institutions and to promote its further development to benefit students, teachers and universities and colleges (HEFCE, 2006, p. 18). At an individual level, the national teaching fellowship scheme was expanded in 2004 to provide rewards for excellence in promoting learning to 50 HE lecturers. This strong interventionist stance is serving to harness significant resources to enhance student learning and to promote and provide the opportunity for successful participation in HE to everyone who can benefit from it. This article reports on research

designed to explore the efficacy of teaching study skills to students in a modern university which boasts a strong widening participation ethos.

### Supporting Learning

An important facet of the emerging notions of excellence in promoting learning is the reopening of the issue of how best to provide appropriate support, especially for non-traditional entrants, such as mature learners and those with vocational rather than traditional academic qualifications. Cotterell (2001, p. 6) argues that, "changes in the student body go hand in hand with the need for different kinds of teaching and with increased emphasis on skills development." Over the last 30 years a substantial literature has been developing related to skill acquisition. In the 1980s and 90s the emphasis was on specifying the nature and range of skills which were variously labeled study skills, transferable skills, key skills and personal skills, and on debating the assumption that strategies, though developed independent of context, are transferable across tasks (Anderson, 1990; Nickerson, 1988; Ramsden, Beswick & Bowden, 1986; Weinstein & Mayer, 1986). The Dearing report (1997), by advocating that all graduates should 'learn how to learn', shifted the research emphasis in the UK back to the importance of developing strategies to learn effectively, otherwise known as metacognitive skill. Far from being novel, the importance of metacognition had been promulgated widely in the 1980s, for example by Martin and Ramsden (1987), Cloete and Shocet (1986), and Habeshaw, Habeshaw and Gibbs (1989). The core assumption underlying the resurgence of learning to learn is that an ability to take responsibility for directing and improving one's own learning, to becoming an independent learner, is a requisite for success in HE, and, by implication, for future employment.

This represents the antithesis of a narrow emphasis on the acquisition of knowledge by learners and on subject coverage by lecturers which research (Gibbs, 1992; Ramsden, 1992) has shown unequivocally pushes students towards a surface approach to learning. In the rapidly changing environment of the 21st century, where subject knowledge risks becoming defunct, it makes sense to promote the learning of reflective strategies to give students the confidence to become independent and life-long learners. Crucially this new drive to support student learning seeks to create a developmental and student-centered approach associated with promoting a deep approach to learning (Marton & Säljö, 1976).

### Creating Supporting Learning Environments

Issues relating to the nature of the learning environments that are most conducive to effective support of learning, center on three facets:

- the type of skill-oriented outcomes which students are expected to learn;
- the kind of learning activities which are most likely to result in these desired outcomes being achieved, including who students learn with, and where students best learn; and
- the curriculum design structures at a program or modular level which offer the most effective environments.

### Skill-Oriented Outcomes

Biggs (2003) posits three levels of skills that are required for students to become independent learners: generic study skills, study skills related to specific content, and metacognitive learning skills. He defines generic study skills as “ways of managing time and space” (2003, p. 93). These skills may be construed as including time-management, keeping track of deadlines, prioritizing, taking notes, developing effective presentation skills, referencing correctly, and the skills for effective e-learning. Study skills that relate to particular content include reading for meaning, not detail, underlining key words in passages, taking notes properly by capturing the main idea of several sentences in one’s own words, using concept maps to derive a major structure, composing essays according to preplanned structures, and using review and revisions. Metacognitive skills include “those self-management skills that are focused on what the learner does in new contexts” (Biggs, 2003, p. 94), and the development of strategies to solve problems, learn from experience, learn independently of a lecturer, self-evaluate and self-monitor. Developing the capability to learn from both

peer feedback and self-assessment are key components of metacognition.

### Models of Learning Activities

Both Peters (2000) and Biggs (2003) posit learning activities that constitute an effective learning environment. Both suggest that self-study, which might be guided or self-directed, is a key component. Biggs also makes a distinction between teaching and learning activities that are *lecturer-directed* and those that are *peer-directed*, while Peters emphasizes the importance of taking part in teaching events at traditional universities. The latter are not just traditional lecturing and learning about subjects in depth, but include social intercourse, discussions in groups and classes, free academic discourse and informal talks with other students. While this group of activities includes interaction with peers, Peters’ analysis differs from Biggs in that the former does not prescribe activities that are directed by peers. The importance of peer/colleague interaction is widely recognized as an effective process focusing specifically on learning and reflection that happens when working on real problems (McGill & Brookbank, 2004). This is an emphasis that underpins various adaptations of action learning. According to Dewar and Sharp (2006) *action learning* takes place when a group of four to eight people share a problem or issues related to their professional practice. Generally used to foster professional development (Rayner, Chisholm, & Appelby, 2002; Stark, 2006), this is a cyclical process in which group members help others to raise questions, to reflect on new understanding, to take responsibility for their own learning, and to learn from the experience. While there is limited literature relating to the efficacy of this approach in full-time undergraduate programs, there is evidence to suggest (Wilson & Fowler, 2005) that the strategy has the potential to enhance critical thinking, to increase self-confidence and to develop communication skills, as well as to offer an effective process to solve problems encountered in the work place (Booth, Sutton, & Falzon, 2003; Johnson, 1998). Interestingly, action learning encompasses and combines both lecturer and peer directed learning in an iterative process where the sharing and critical review of experiences and solutions leads to the learner learning “new skills and attitudes by being steeped in the active involvement of the learning process” (Stark, 2006, p. 24).

Peters’ (2000) third category, studying in a digital environment, may include lecturer, peer and self-directed tasks including using networks for communication and for gleaning information, selecting and evaluating, and joint action learning in small and larger groups where problems that students have

devised are solved. Biggs (2003) thus focuses on *who* directs the learning while Peters is more concerned with the *location* and the *mode* of learning. The latter also highlights the importance of e-learning. None of the categories is mutually exclusive and each learning activity elicits a different kind of engagement from a learner (Biggs, 2003). Thus, it would seem that each should be incorporated into the curriculum of a modern university.

Finally, in drawing this discussion to a close, it is important to allude briefly to the role of self-regulated learning because a strong resonance exists between self-regulation theory and the findings of this study. In the last two decades considerable research has been undertaken, particularly in the US, on self-regulated learning (see Boekaerts & Niemivirta 2000). According to Zimmerman (1994), self-regulation refers to the extent to which students are metacognitively, motivationally and behaviorally active participants in their own learning. It is exemplified by effective time-management, orientation towards specific goals, mastery of learning materials and a sense of self-efficacy. A link has also been established between self-regulation and academic success (Deci, Ryan, & Williams, 1996), with self-regulated learners being found to demonstrate an ability to assess their own abilities and to be receptive and responsive to feedback on their own performance.

### *Curriculum Design Structures*

A significant development in the structure of HE skills curricula is the introduction of 'blended' learning solutions to issues of design. Coined by Rosenberg (2001), blended learning has a range of different interpretations but constitutes a combination of: face-to-face sessions + e-learning + text-based learning materials. The mix can be in different proportions and both text-based and digital learning may occur within face-to-face interactions. Kaye (1992, p. 1) claims that a digital learning environment offers opportunities for "learning together apart", and Keegan (1995, p. 108) that it facilitates "teaching face-to-face at a distance." However the use of blended learning assumes that e-learning cannot replace face-to-face encounters fully because communication through the medium of technology is reduced and altered. It offers a compromise that some see as a stepping stone to the pre-eminence of e-learning as it "allows organizations to gradually move learners from traditional classrooms to e-learning in small steps, making change easier to accept" (Smedley, 2005, p. 81). Others perceive blended learning as offering the potential to overcome the limitations of both face-to-face and e-learning (Cotterell, 2001).

The introduction of blended learning is resulting in a reconceptualization of module design because "it is insufficient to merely modify traditional delivery methods to accommodate this new learning approach" (Smedley, 2005, p. 81). A prime focus of this rethinking is a return to former debates about the effectiveness of free standing and integrated approaches to supporting learning. Cotterell (2001, p. 41) argues that in "trying to address the study needs of students, universities have tended to move towards establishing either specialist centres for study support outside of the department, or, increasingly, skills modules within the curriculum." The provision of learning support located outside formal teaching and to which students who are deemed to require additional support are directed by university lecturers, smacks of a deficit model that runs counter to the tenets of the widening participation agenda and fails to recognize that all students have learning needs. This model has been superseded by an inclusive, developmental approach, akin to the social model of disability, which recognizes that within the academic environment, learners face barriers, behaviors, and attitudes which inhibit their learning and that need to be addressed. Cotterell (2001, p. 43) posits a model where "additional support, skills modules or peer support are part of a multifaceted and integrated approach." The key features of this developmental model are that:

- all students can improve their learning (supportive learning environments thus need to be positive and inclusive);
- skills are not regarded as discrete entities but are developed over time as part of a broader process of personal and academic development;
- students become increasingly responsible for their own learning within an environment of constructive feedback and guidance;
- delivery is student-focused;
- teaching contexts adapt to learner intakes; and
- there is dispersed responsibility such that learning development and skills enhancement are the responsibility of all teaching staff, although there will be different scales of involvement (Cotterell, 2001, p. 45).

Cotterell's (2001) approach suggests that all skills learning should be delivered within subjects. In this way learners can relate strategies to the program outcomes and to specific subject learning tasks. This is a perspective that is reflected widely in extant literature (Chalmers & Fuller, 1996; Hadwin & Winne, 1996; Norton & Crowley, 1995; Ramsden, 2003; Ramsden, Beswick & Bowden, 1986; Wade & Reynolds, 1989).

Within-subject skill development has been interpreted variously as incorporating study skills as a discrete module into a subject program, integrating them loosely within subject modules, and embedding skills fully into modules to the extent that all lecturers in HE accept and exercise a responsibility to help students to improve their learning. It would seem that these different orientations can be positioned along a continuum ranging from a reductionist-oriented pole, where study skills are taught in free standing modules, to an embedded-oriented pole where learning is fully integrated, supported and fully permeates a program of study. While there is a dearth of empirical research on embedding learning support in HE, recent research at the National Research and Development Centre for Adult Literacy and Basic Skills shows that literacy skills are more readily achieved in fully embedded courses (Casey, 2006).

This literature on the definitions of study skills, the learning activities which best support the teaching of skills and the models of curriculum design deserve further investigation and form the point of departure for this article. The context of this study is part of a Centre for Excellence in Teaching and Learning (CETL) in the School of Education of a post-1992 university. Learning for Success (LFS), the focus of the study, is a study skills module which is integrated into the programs of students studying for first degrees (a bachelor's degree is awarded after three successful years of full-time study) in early childhood studies, education studies, conductive education and special needs and inclusion studies, and for foundation degrees (vocational-oriented awards that are equivalent to two thirds of a bachelor's degree) in early childhood studies. The module seeks to promote learning in three categories of study skills that align with those posited by Biggs (2003). The outcomes and the context of study for each of these categories (see Appendix A) provide the framework for learning over the 26 weeks of the module.

For the past five years the pass rate in this module has been very high, a trend which has been maintained, since 2003/4, through the widening of participation to include foundation degree students. The government funding for the CETL afforded university lecturers the opportunity to explore the efficacy of this year long module which forms 25% of the total study in the first year of the degree program. The research sought to elicit students' perceptions in relation to the following question:

To what extent do the module outcomes enhance or develop students' generic study skills, study skills related to their course, and metacognitive skills?

## Method

This case study was undertaken from a phenomenographic perspective (Marton, 1981; Marton, 1986; Marton & Booth 1997; Marton, Hounsell, & Entwistle, 1984) of students' perceptions of their experience on the Learning for Success module. Phenomenography explores how concepts, principles and phenomena are perceived, experienced and understood in specific contexts and is thus concerned with the direct exploration of experiences (Marton, Hounsell, & Entwistle, 1984). It is an approach which is used to tackle "questions of relevance to learning and understanding in an educational setting" (Marton & Booth, 1997, p. 111) and to describe "the limited number of qualitatively different ways in ways in which we experience phenomena and present this variation in terms of logically related categories of description" (Martin, Trigwell, Prosser, & Ramsden, 2003, p. 249). In this study this means identifying the qualitative *variation* in the experience of learning study skills by first year undergraduate students and describing this variation in terms of categories. This is a second order perspective in which the world is described by individual learners through reflective accounts of their learning on the module.

In total, 205 students studied this module in the academic year 2005–2006. All students were asked if they wished to take part in the study; this was a self-selection method whereby students were asked to sign a statement agreeing to participate. There were no penalties for non-participation and 73 students initially agreed to take part. Of this group 62 students submitted reflective logs, 18 of which were also respondents in one of three focus groups.

The principle data collection instruments were: (a) a SWOT (strengths, weaknesses, opportunities and threats) analysis of the students in terms of the skills to be developed in the module; (b) a written reflective account of students' personal development throughout the 26 weeks of the module based on the original SWOT analysis; and (c) end of module written student evaluations. In order to provide some direction to students, tutors modelled a section of how a reflective account might be written and also provided examples of completed reflective accounts from previous student cohorts.

The reflective accounts provided an appraisal of students' perceptions of their achievement of the learning outcomes of the module (see Appendix A). In addition, students also considered how the skills acquired on the module enabled them to continue with their studies in a more effective way. In the reflective account, students were invited to discuss in a constructive and analytical manner, any areas that they

felt were not beneficial to their learning. This research study also used focus groups to bring together participants who shared the same experience, but not necessarily the same interpretation and perspective, to provide a source of data to validate the findings from the reflective accounts. Three focus group interviews were conducted; two comprised mature students on a part-time foundation degree and the third comprised five first year undergraduate students on specialist degree programs. The group facilitator for all three groups was an academic who did not teach on the module but who was familiar with first year HE work.

The authors of the article and the research assistant arrived at the categories of responses to the experience of the module independently. Initially the principle researcher and the research assistant analyzed the data independently and identified variation in the categories relating to the learning of each type of skill. The two researchers and the assistant then shared their analyses and consensus was reached. Verbatim quotations were then selected to describe the essence of the variation in each category rather than a rich description of students' experience. Respondents cited from the reflective accounts are identified by their initials and those from the focus groups alphabetically from A-X.

### Results and Discussion

The results are organized into qualitatively distinct categories which describe students' responses to the learning of generic, subject related and metacognitive skills through the experience of the module. The categories are first described, and then verbatim quotations from the focus groups and the reflective accounts which illustrate key aspects of each category are presented. The intention is to provide an account of the essence of each category. Thus no single quotation is intended to describe fully the category, rather quotations which typify a category have been chosen and grouped together. In this way the distinctive differences between categories emerge.

#### *Generic Study Skills (see Appendix A)*

Three categories of variation in response in relation to the learning of generic study skills (see Appendix A) were identified, (a) students becoming more *confident* in their ability to perform the skills, (b) students gaining more *expertise* in the range and scope of skills they can readily perform, and (c) students *not engaging* with the learning of generic study skills. The first two categories are interrelated, but the third category is independent.

#### *Growth in Confidence*

This category focuses on changes in self-perceptions leading to growth in confidence in students who, prior to the outset of the module, felt inadequate, nervous and isolated or out of their depth in an HE environment. A significant number of students in this category were mature students who had not been in a formal learning environment for some time. Participant C and NH attribute this to being able to make a valued contribution, JR gains confidence from being able to complete tasks successfully, whilst NH comments on her increased ability to communicate. The following quotations illustrate facets of the category:

I'm really quite shy but doing the group work for presentations and in the sessions has given me a lot more confidence...I feel I can say something and not be thought of as...you know...stupid or something (Participant C).

My weakness in this area [IT] had made me feel foolish but I asked for support and guidance. I observed how to complete the task and so was then able to go away and successfully complete it myself...this achievement was a milestone for me (JR).

On many occasions I have had to work as part of a team, often with people I did not know. This, at first, proved difficult to me, as I lack confidence and am a quiet person. As the year progressed, I felt myself becoming more confident, not just at partaking in, but contributing to the presentation. This is also apparent to me out of university. My self-belief has improved greatly and I am able to communicate with people a lot better (NH).

#### *Growth in Expertise.*

The reflective accounts provided wide-ranging evidence of expertise in the range of generic study skills outlined in Appendix A that students acquired over the 26 weeks of the module sessions. The accounts suggest that for those who were not computer-literate prior to studying the module the development of information technology (IT) skills, including using PowerPoint and a virtual learning environment, was highly valued.

Among the remaining generic study skills the acquisition of expertise relating to presentation skills, working in teams and time-management was reported by students. LM, SF and Participant C each comment on the IT skills that they have acquired through the module experience. AH comments on the presentation

and communications skills learnt, whereas HD and CC illustrate time-management strategies that they have adopted. JR's comments describe progress in working in teams successfully. There was insufficient evidence to report the development of skills relating to the application of numerical analysis to data. The following quotations illustrate this category:

Many of my weaknesses are now less significant, particularly my IT skills. Before embarking on this course I had very limited computer knowledge and felt this may hinder my progress. Fortunately I am rapidly increasing my ability to use a computer and it has transformed my attitude to the new technology it brings (LM).

I have even been brave enough to deliver sessions in my workplace using an interactive whiteboard, something which would have been unthinkable before I undertook this course (SF).

For me the IT has been the best – I couldn't use a computer before I was... you know a bit scared of them but now I use mine all the time at home and at work I can put some of the children's work (Participant C).

When I have given presentations I have changed from when I first started this module. My body language and voice were poor and I struggled to connect with the audience I was speaking to...when I gave my last presentation I spoke more clearly and kept the right body language and eye contact (AH).

The time-management pack really helped me to organise my time efficiently suggesting what areas I was having problems managing. ... (The) activities helped me to overcome the problems I had with time-management. They allowed me to plan ahead and made me realise that I had a lot of disposable time which I could use to plan extra study time. In my opinion conscientious time-management has been advantageous to my university course and I have also learnt that I cannot plan for unexpected events and must deal with the most important things first allowing me time to relax and study at the same time (HD).

I now try and prioritise my work and no longer consider myself to be a procrastinator as I have set times to do my work and there is no longer a need for me to put things off.... I will definitely be using this experience to help me through the rest of my time at university (CC).

In group and team activities I have learnt to participate more this means taking far more risks by voicing my ideas and opinions. I am now more accepting of other students' views and I hope this makes them accept mine more (JR).

### *Lack of Engagement*

The lack of engagement with the module outcomes and learning experience represented by this category was an atypical response to the learning experience of the module. The contributors to this category may be divided into three sub-categories, (a) confident mature students who felt that their life experiences had already provided them with sufficient opportunities to develop the generic study skills, (b) traditional students who had recently left school or a tertiary education institution which had equipped them with a wide range of skills, and (c) students who did not perceive the generic skills teaching as useful/relevant. Participants J and N and Ds all failed to engage with the module as a whole because they perceived that there was nothing new on offer, whilst JGR, AH and LT lacked engagement in learning the specific skills of using web blogs and memory skills, finding them superfluous. To illustrate:

[web blogs] I can't see when I would ever really use them. (JGR).

I don't use web blogs in any my modules or my assignments (AH).

And of memory skills, "I did not feel it was useful at the time of doing it (LT).

For me this module has been a waste of time...I haven't enjoyed it all. I got A level IT so there was nothing there for me...I've been working fulltime for the last five years and had to do presentations...nothing there either...I suppose the referencing might come in handy (Participant J).

It's been alright but we had a lot of study skills at sixth form college so I knew about a lot of it...Harvard referencing is useful but tutors do it differently !! (Participant N).

There are many of us who have just finished secondary and college education and are familiar with the key skills that are taught as part of the curriculum. As a result of this, I personally, found the majority of the Learning for Success lectures, tedious, long-winded, and unchallenging (DS).



### *Subject-Related Skills*

Analysis of the module program indicates that the proportion of the module time devoted to the development of subject-related skills (see Appendix A) was less than that for the generic study and metacognitive skills. This is reflected in the responses from students in each of the three focus groups where there was consensus in relation to the need for more contact time devoted to the development of both reading for meaning skills and research skills. Conversely, students expressed a high degree of satisfaction in relation to the use of mind-maps.

Three categories of variation in response in relation to the learning of subject-related skills were identified, (a) students not engaging with the learning to promote subject-related skills; (b) students believing that their ability to be critical had improved through the acquisition of these skills; and (c) students applying the skills to other modules in the program.

The second two categories were interrelated, but the first and third categories were independent. Those who lacked engagement with learning in relation to these skills, failed to comment on their applicability to their subject study. This is not surprising given that those students in this category failed to achieve the module outcomes and in consequence were not in a position to apply these skills to their subject learning.

### *Lack of Successful Engagement*

Those who contributed to this category can be divided into two subcategories, (a) those who had difficulty in engaging with the task at hand, and (b) those who failed to engage with the task successfully because they found it irrelevant to their studies. Participants D and P and AM found reading and note-taking skills difficult to acquire. For participant P and AM this perception was linked to the belief that insufficient expert lecturer time had been devoted to the development of these skills. TS and PW reported that their learning of research skills had been compromised by their belief that it was not relevant at this point in their program. Similarly, the negative attitude towards the use of blogs to develop writing skills illustrated by Participant O, emanated from a belief that the language register developed through the blog did not accord with that which was required in assignments. The following comments exemplify this category:

There was an assumption of certain research skills but in reality there was a gap. For example, what to really look for if you are reading something. (Participant D)

I'm still not always sure what we have to find in the readings.... perhaps we could have had more time to explore this in the lesson? (Participant P)

I found the work on note-taking daunting and don't really think I have made much progress more time on this would have helped because it could be useful (AM).

Questionnaire design- found this not applicable, I didn't know how it was appropriate (TS).

I cannot see the point of learning how to take notes I will learn this when I need to (PW)

I'm not sure if the blogs helped at all with this (academic writing) as the lecturer said we could use the blogs to write how and what we wanted but when it came to the assignments then you have to write differently. (Participant O)

### *Growth in Reading and Writing Skill*

Each respondent in this category engaged successfully with the tasks designed to promote the development of reading and writing skills. SF, ADK and JG linked reading and writing skills and ADK and CB made the connection between writing and thinking critically. To demonstrate:

I think it is a good module that gives an all-round approach to academic reading writing and personal development. It is hard for many students to see its relevance at times but I feel this is becomes more & more apparent as the assignment draws closer (SF).

While I've been reading I've also been taking notes about what the author is saying but writing it down in a way that I understand what is being said...Writing has helped me gain much more knowledge of what I've been reading; it has helped me understand the meaning of an argument and criticism (ADK).

I learnt how to think more critically, so when I have to write essays I now try to think of other perspectives, which means I am developing my critical thinking skills (CB).

For me the reading and writing activities were the most interesting and informative. I enjoyed and learnt the most from listening to other people's ideas and thoughts and learning how they went about using what they read in their essays (JG).

### *Growth in Skill Transfer*

Students in this category reported variously on the applicability of the skills learned in the module to current and future studies. Research skills were widely seen as having relevance in future study in years two and three of the three year program rather than in the first year, whereas mind-maps and the work on planning were believed to have immediate applicability in relation to subject modules; a point of view expressed frequently by students in this category. JG, PB and PW each refer to the potential for transferring what they have learned in the module to work in assignments in their subject studies. To illustrate:

Researching skills such as how to conduct a questionnaire will be useful for future university work especially in year three (CB).

I found that by writing about the experiences I needed to reflect upon, as part of this course, I started to reflect in other areas (JP).

Mind-maps are responsible for revolutionising the way I plan all my assignments (JG).

I have developed as a learner by using this way of note-taking (mind-maps) because it makes me think more about the challenge ahead and what I should put in my assignments (PB).

After reading round the area of improving memory I decided to test it on myself. I used (Buzan's) mind mapping method to plan some of my other assignments and found this method a very productive way of planning my work (PW).

### *Metacognitive Skills*

Two categories have been identified that describe the variation in how the learning of the metacognitive skills detailed in Appendix A were experienced by students on the module, specifically: (a) students believing that their self-reflective capability had improved; and (b) students believing they had changed as a learner. The SWOT analysis at the beginning of the module together with students' end of module reflective accounts based on their original SWOT analysis, and their end of module evaluation each provided a stimulus for critical self-analysis that permeates the module. There is a clear emphasis in this category on the 'how' rather than the 'what' of learning, and on the "connectedness between the action that students undertake in relation to the module outcomes and in response to (a) taught sessions, (b) directed learning, and (c) assessment régimes" Allan, (1997, p. 217). For

example, Participant X stated, "I returned to study as a mature student and my previous experiences of education have been with the emphasis on what I learned rather than how I learned, this module has allowed me to examine the techniques I have used in the past."

These two categories are structurally more complex than the categories relating to the experience of generic and subject-specific skills. They are perceived as being hierarchical because *Changing as a Person* subsumes *Growth in Self-Reflection*; in other words, those who change as learners also report becoming more self-reflective.

### *Growth in Self-Reflection*

This category is distinguished by a developmental process of self-reflection that is begins with a focus on prior experiences of learning. Both ST and LP utilize this reflection on their past achievement to form the base line for future action planning, whilst JP focuses on the way in which reflection on her previous learning has helped her to develop new thoughts and strategies. Implicit in each of the descriptions is the conception of learning as a cyclical process. The following quotations exhibit this category:

It was helpful to reflect on my past experiences as a learner and to establish what I hoped to achieve during my studies. I have since returned to my analysis to reflect on it and have achieved what I hoped I would (ST).

In order to learn from past experiences we need to remember what has happened previously. The information gained from this reflection encourages new thoughts and helps us to develop different strategies, which result in us adopting a different, more constructive approach the next time. Of course the stages of experiential learning are not linear but are part of a continuing cyclical process that enables us to develop our learning (JP).

Actively and consciously I have found myself using reflection to plan strategies for my future learning and development in other areas of my studies. I believe that reflecting has been a fundamental, positive component of my learning processes and achievements to date...the ability to reflect will continue to inform my future learning in order to achieve my full potential (LP)

### *Changing as a Person*

As with *Growth in Self-Reflection*, the theme of reflection runs through each of the illustrations. But the

essence of this category is the allusion to fundamental change that has taken place within the student. For KW the notion of change is implicit, she refers to the overcoming of barriers that have been impeding her progress, whereas GR refers to how change can be brought about. Participant Q and SF refer to seeing themselves differently or developing as a person. To illustrate:

On reflecting on the LFS module as a whole I must add that I have learnt a variation of things about myself and the subject base. At the onset of the course I did a SWOT analysis. My strengths and opportunities lists were minimal and I have since completed a new analysis which is in fact much wider and more assertive. In my first analysis I identified that I had five considered weaknesses and threats regarding life as a student. I now consider these issues as my inner fears as opposed to genuine barriers to my future. Essentially I may always have inner fears, but it is the way I deal with them that is important (KW).

The process of reflection puts emphasis on the whole HE learning experience and how one can make changes, learn from mistakes and appreciate one's strengths. By continuing to reflect upon my own learning experiences I have a clearer picture of what I can achieve. By using all of the strategies I can continue to learn how to become more successful in academic study (GR).

When you put down the strengths and weaknesses well... it is hard at first but then it helps you see yourself differently (Participant Q).

I think that the main thing that I will take away from this module is not on the programme itself, it is the development of me as a person. Looking back at my SWOT analysis, I had very poor self-esteem. I always thought that others were better than me... If I take nothing else away from this course, the boost to my self-esteem will have made it all worthwhile (SF).

#### *The Relationship Between the Categories of Experience of Learning*

Whilst it might be inferred that the acquisition of metacognitive and subject-related skills should result in greater self-confidence, this is not apparent in the data. Students do, however, report a feeling of greater confidence as a result of the successful acquisition of the generic skills taught in the module. Within the category of those who described changing as a person some allude to changes in self-esteem and

assertiveness, both of which may be linked to the development of confidence. Confidence, however, does not derive from changing as a person or from the honing of metacognitive skills; rather, the perception of having changed as a person emanates *from* the development of other skills.

Generic skills are concrete measurable skills which might be described as the 'what' of learning in contrast to metacognitive and subject-related skills which relate to the process or the 'how' of learning. A facet of this is the development of criticality, which is identified directly in relation to subject skills only. However, it appears that learners have applied their increasing ability to thinking critically beyond their subject to critical self-awareness of their ability to learn how to learn.

Growth in skill transfer was identified by respondents in relation only to the development of subject skills. That said, the lack of evidence in respect to the transferability of generic and metacognitive skills does not preclude these skills from being transferable, rather it suggests that the data in relation to the extent of transferability are incomplete.

Variance in the level of engagement was evidenced in relation to both the learning of generic and subject-related skills, but not in relation to the development of metacognition by any of the 62 respondents. A lack of engagement is attributed to three factors (a) perceptions that the skills were too challenging, (b) a perception that the skills were irrelevant to successful study, and (c) a perception that the skills were irrelevant because they had been acquired prior to studying the module. The perception of relevance is thus a key element of engagement.

#### *Conclusion and Recommendations*

A strong theme in the different experiences of learning presented here is variance in engagement in learning. The technique of using a SWOT analysis at the start of the module, together with a range of blended activities to promote frequent self-assessment of learning throughout the 26 weeks, were deemed by respondents to be appropriate. Learning in relation to generic and subject related skills and metacognition was lecturer, peer and self-directed and took was in line with both Biggs' (2003) and Peters' (2000) criteria relating to location, mode and the originators of learning. Given that a similar blend of approaches was also used in relation to the teaching of each of the skills; it appears that the method of teaching and learning is not here a decisive factor in explaining inconsistencies between the level of respondents' engagement.

However, the spread in the level of engagement described in this article begs the question as to whether

integrating a skills module into a program study offers the most effective way to create a supportive learning environment. Given that the module constitutes 25% of the year one undergraduate program, any variance in engagement threatens to compromise the achievement of high retention and progression rate for all students. Although the learning of generic and subject skills in an integrated program can be achieved by many students, the findings of this research suggest that the quest to offer and include all students means rethinking the teaching of both generic and subject-related study skills.

The findings in relation to the teaching of subject-related skills in this research suggest that there is insufficient emphasis on skills in the module. In order for all students to achieve a high level of competency there needs to be more opportunities for the development of these skills. The dislocation between the development of these skills and the context in which they are applied appears to preclude their effective development; suggesting that the embedding of these skills within subject modules over a three-year program might be efficacious.

Conclusions relating to the learning of generic and metacognitive skills are more equivocal. While the findings suggest that a module devoted to generic study skills should not be core for all students, there is ample evidence to suggest that a shorter option module carrying fewer credits might offer a valuable learning experience for some students. The results suggest that the embedding of these skills within subject modules, although possible, might not allow the flexibility of access based on previous experiences, which is required.

In relation to metacognitive skills, notwithstanding evidence suggesting that promoting the learning of these skills in a module integrated into a program is effective, the learning of these skills might be equally effective were they embedded into subject teaching. Given that this research is advocating embedding the teaching of subject-related skills, the development of metacognition within subject modules would offer a supportive context spanning the three years of a degree program.

One caveat remains: the development of sophisticated learning environments at modular level inevitably demands significant commitment from all university lecturers, some of whom may hitherto have regarded their role rather more narrowly as subject lecturer. Inevitably this will require the provision and use of staff development opportunities.

In summary, this article has investigated the range of perceptions of first year students in relation to the acquisition of generic, subject-related and metacognitive study skills. A range of perceptions was found which suggest that the integration of a module

within a program of study is not the most effective way to promote these skills for all students. This raises the possibility that if a more inclusive environment, which engages all learners, is to be created, then the teaching of subject-related and metacognitive skills needs to be embedded in subject teaching and learning. Further research is needed to posit models of acquiring generic study skills and to establish if the embedding of skills into subject modules poses an appropriate solution.

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## Appendix A

## The Outcomes and the Context and Scope of the Learning for Success Module

Generic Study Skills	Context and Scope
Communicate effectively.	Formal group presentation using appropriate style and supported with visual aids and handouts.
Apply numerical analysis to data.	Gathering, analyzing and presenting quantitative data. Basic Excel® techniques to assist data analysis and presentation.
Make effective use of information technology to promote own learning.	Use OPAC, BIDS to locate source materials. Use the Wolverhampton On Line Learning Framework (WOLF) to access module materials and take part in on-line discussion forums. Use appropriate software to assist presentation techniques during summative assessment.
Work effectively with others.	Work as an effective member of a co-operative group for the purpose of summative presentations and formative library tasks.
Subject-Related skills	Context and Scope
Apply models for the development of skills of reading, note-taking, writing and planning to their own program in H.E.	Reading for Meaning and Understanding, note-taking, essay planning and writing.
Plan and carry out a small-scale research study using and combining quantitative and qualitative techniques as appropriate.	Quantitative and qualitative research principles. Designing effective data collection instruments. Data collection, analysis and presentation techniques.
Metacognitive Skills	Context and Scope
Improve own learning performance.	Self-motivation and resourcefulness - demonstrate decision-making skills. Assess progress, monitor, review and reflect upon own performance and achievements
Solve problems	Work co-operatively individually and in a small group. Develop problem- solving skills in a variety of contexts and evaluate their effectiveness.
Apply theoretical knowledge and the results of assessment and analysis to planning for the development of own study skills, time-management skills, stress management skills and personal organisation.	Theories of learning: Behaviorist, Cognitivist, Goal setting, objectives and strategies for them, reflective self-analysis.
Assess strengths and weaknesses in relation to learning styles, approaches to study, time-management, stress management and personal organisation.	Study skills, approaches to study, personality inventories and questionnaires, C.V.s, portfolios, time logs.

## Cooperative Learning in a Competitive Environment: Classroom Applications

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Many university level programs are obligated to prepare students for professional employment while simultaneously providing the academic rigor consistent with university level study. These programs include but are not limited to: commercial recreation, sport management, therapeutic recreation, marketing, accounting, and law. Consequently, an education in any of these areas has to not only foster student learning, but also enhance opportunities for students' professional development. Professional studies classrooms provide exceptional opportunities to facilitate team-like cooperation in a competitive business-like environment. Instructors can utilize these unique instructional opportunities in order to maximize student learning and professional development, preparing them both to cooperate and compete by structuring learning activities that require them to cooperate in teams that compete against one another. This paper presents a rationale for using cooperation and competition in higher education classrooms and then provides an example of the application of these techniques in a capstone commercial recreation class.

Many university level programs are obligated to prepare students for professional employment while simultaneously providing the academic rigor consistent with university level study. These include but are not limited to commercial recreation, sport management, therapeutic recreation, marketing, accounting, and law. Consequently, an education in any of these areas has to not only foster student learning, but also enhance opportunities for students' professional development. Employers report that 80% of all employees in America work in groups identified as teams (Caroselli, 1998). Therefore, it is critical that professional studies students develop the requisite skills to succeed in a team-oriented environment within the competitive environment of commercial industry.

Professional studies classrooms provide exceptional opportunities to facilitate team-like cooperation in a competitive business-like environment. Instructors can utilize these unique instructional opportunities in order to maximize student learning and professional development, preparing them both to cooperate and compete by structuring learning activities that require them to cooperate in teams that compete against one another. While neither cooperation nor competition is inherently good or bad in supporting the learning process, how instructors employ these strategies in order to enhance student learning determines their value in preparing well-educated soon-to-be professionals (Ediger, 1996). A properly balanced approach combining cooperation and competition in fostering student learning best serves students as they are able to achieve academic success both in concert with others on their team and on an individual basis within the team (Ediger, 1996). Therefore, by employing both competition and cooperation, instructors can enhance learning opportunities for students pursuing professional careers.

Competition has been defined as "a social process that occurs when rewards are given to people on the basis of how their performances compare with the performances of others doing the same task or participating in the same event" (Coakley, 1994, p. 78). Each of three forms of competition – direct, indirect, and cooperative – hold both positive and negative components (Graham, 1976). Cooperation also includes potentially positive and negative aspects. Cooperation has been defined as "a social process through which performance is evaluated and rewarded in terms of the collective achievements of a group of people working together to reach a particular goal" (Coakley, 1994, p. 79).

Both competition and cooperation potentially impact student performance. For example, Triplett (1898) found that cyclists performed tasks faster when racing with or against others than when they functioned alone, indicating that the effects of competition on performance were favorable. Lam, Yim, Law, & Cheung (2004) found that competition had a positive impact on performance goals and learning motivation in the classroom. Dettmer (2004) posited that "learning by losing" was a valuable process for students preparing for professions where working under pressure was necessary. However, Deutsch (1949) suggested that cooperation embodies positive interdependence, competition reflects negative interdependence, and found that college students solved more problems in a cooperative environment than students in a competitive environment.

### *Cooperative Learning Environments*

Cooperative learning in college is based on the theories of cognitive development, behavioral learning, and social interdependence (Morgan, 2003). Cognitive



development is an outcome of cooperative learning, wherein constructivist knowledge development and transformation result from collaborative attempts to discover, comprehend, and decipher (Piaget, 1965; Vygotsky, 1978). Behavioral learning theory suggests that students will commit to participation in team efforts if they are rewarded for that participation, and are likely not to commit if no rewards are evident (Morgan, 2003). Therefore, both individual and team rewards should be evident in cooperative learning environments, wherein rewards for participation in team productivity are purposeful (Johnson, Johnson, & Smith, 1998). Evidence suggests that cooperative learning yields increased efforts among students, more positive interpersonal relationships, and improved mental health when compared to purely individualistic learning (Johnson, Johnson, & Holubec, 1994).

Parrenas and Parrenas (1993) suggested that cooperative learning facilitates higher student achievement. Properly applied cooperative strategies will also contribute to student socialization within the culture of professional industry, better preparing them for the expectations of the professional world (Caroselli, 1998). Student teams can employ cooperative learning techniques such as group brainstorming, which in one study generated double the number of ideas when compared to individual brainstorming (Osborn, 1957). Working in teams in the classroom will encourage flexibility and adaptability and promote inclusive interpersonal relationships, thus aiding in the transition from college student to professional in an increasingly diverse commercial industry (Kohn 1992). Democratized participation in teams will also enhance opportunities for leadership among future managers. Manzer and Bialik (1997) concluded that team learning allowed for the coverage of more course content in a shorter time, with students displaying increased class attendance and a greater orientation to course goals.

Certainly, successful cooperative learning experiences in the classroom require as much care in their development and implementation as do traditional individualistic and competitive experiences. Cooperative and collaborative learning experiences require that instructors attend to the formation of the group, the composition of the group, the dynamics of the group, the assessment of student work, and the design of group tasks (Ventimiglia, 1994). Individuals diverse in backgrounds, goals, skill sets, and interests will be required to collaborate with each other in activities directed toward group outcomes. For example, in planning, implementing, and controlling a strategic marketing plan, Shank (2002) noted that effective communication and “interacting well with others within the sports

organization” (p. xx) is essential. Principles for fostering success in a cooperative professional studies classroom include distributing student leadership, grouping heterogeneously, encouraging positive independence, facilitating social skills acquisition, and allowing for group autonomy (Parrenas & Parrenas, 1993).

Kohn (1992) contended that, in cooperative environments, learning doesn’t merely happen to an individual, but through them as well. Indeed, the Chinese philosopher Lao-Tzu’s (~600 B.C.) contended that a leader is best whose followers say, “we did it ourselves.” Therefore, engaging in professional preparation activities in which students invest themselves is advantageous.

Students intending to embark on professional careers must learn how to work collectively to achieve appropriate objectives. Effective professional preparation for managers, marketers and practitioners fosters well adjusted individuals who are able to contribute to the team in order to accomplish shared goals (Baris-Sanders, 1997).

Classroom content taught through cooperative instructional strategies, with heterogeneous teams in an inclusive environment, encourages positive student interactions in pursuit of team goals (Dyson & Grineski, 2001). While realizing the many benefits of cooperation, team learning does allow for appropriate inter-group competition as well. An understanding and careful application of competition in the professional preparation of students may serve the interests of our student populations as well as industry in general. Similarly, when properly employed, cooperation that emphasizes the need for each student’s contributions to achieve collective goals can have very positive impacts on student learning (Dyson & Grineski, 2001). Therefore, an approach that balances cooperation and competition will prove beneficial to students in professional preparation programs. Structuring a problem-based competitive project, wherein cooperative student teams compete against one another, is one way instructors can ensure both cooperative and competitive learning opportunities for students. Johnson & Johnson (1999) recognized the necessity to integrate cooperative learning and competitive individual learning. Wynne (1995) promoted a synthesized cooperation-competition instructional strategy combining positive aspects of both cooperative learning and motivational competition using inter-group competition between collaborative teams. When properly employed in a competitive environment, cooperation emphasizing each individual’s contributions toward collective goals can have very positive impacts on student learning (Dyson & Grineski, 2001).

### *Problem-Based Learning*

Problem-Based Learning (PBL) is “learning that results from the process of working toward the understanding or resolution of a problem” (Barrows & Tamblyn, 1980, p.18). According to Boud (1985) “the principle idea behind PBL is that the starting point for learning should be a problem, a query, or a puzzle that the learner wishes to solve” (p. 13). Schmidt (1993) identified cognitive effects, such as analysis, activation and elaboration of prior knowledge, structuring knowledge, social construction, contextual learning, and curiosity, in the acquisition of knowledge through PBL. Jonassen et al. (1995, 1999) noted the constructivist learning environment created with PBL, which empowers students and promotes both meaningful and useful learning. Problem-Based Learning (PBL) can be employed in classrooms through instructor-guided team competitions. The use of PBL teams in professional preparation classrooms can enhance intragroup collegial cooperation and collaboration as well as intergroup competition outcomes (Amos & White, 1998). PBL can enhance both team and individual outcomes. In PBL teams, students who may not be at the top of their class based on traditional measures of academic accomplishment have the opportunity to make meaningful contributions to the team, such as organizing tasks, managing conflicts, negotiating agreements, and facilitating interpersonal communication. Beyond the academic benefits of the problem solving process, personal skill development is also enhanced. For example, teamed professional preparation students engaged in PBL might participate in dialogue that entertains differing points of view, wherein they must suspend prejudgment. Students may also be required to manage their emotions while working with colleagues, controlling anger or moderating frustration as they resolve conflicts. In order to maximize their professional development, students should be required to collaborate in pursuit of group outcomes through participation on cooperative teams in a competitive environment. Some of the characteristics desired in new hires by employers were presented by Watson (2002) who referenced the Wingate Conference of 1994. The attributes he discussed included 1) high level communication skills, 2) the ability to define problems, gather and evaluate information, develop solutions, 3) the ability to work with others, and 4) the ability to use all these skills to address problems in a complex real-world setting. Tjosvold, Sun & Wan (2005) found that open discussion and a problem solving orientation strengthened interpersonal relationships among group members and fostered exploration, integration and the adoption of alternative ideas. Michaelson, Knight & Fink (2002) suggest that team based learning is

especially appropriate in courses that emphasize problem solving and the application of the course content

### *Combining Cooperation and Competition*

Cooperation and competition are very different ways of approaching the act of learning which, when combined, provide potential benefits to students (Johnson & Johnson, 1999). The key to maximizing opportunities for student learning in sport management classrooms is the successful development of instructional strategies and practices that foster both competition and cooperation. Longstanding authorities on cooperative learning, Johnson and Johnson (1999), recognized the necessity to integrate cooperative learning with competitive and individualistic learning.

Cooperation-competition is an instructional strategy combining components of cooperative learning with the positive aspects of motivational competition through inter-group competition between collaborative teams of sport management students. Sport management instructors should purposefully group students into heterogeneous or homogeneous teams. The teams compete in pursuit of positive individual and team outcomes in the problem solving process, which can be structured in such a way as to allow for both team and individual grades (Wynne, 1995). “There is considerably more research needed to clarify the conditions under which competitive or individualistic efforts may have more powerful effects than cooperation” (Johnson & Johnson, 1998). The intent of this project was to forward Johnson & Johnson’s (1998) notion that more work is needed to gain insights into the conditions under which competitive and cooperative efforts are effective. Tauer and Harackiewicz (2004) found that by combining cooperative group learning with inter-group competition intrinsic motivation of participants consistently improved. The findings suggest that a combination of cooperation and competition facilitates motivation, enjoyment, and performance of participants. The implications for professional preparation indicate the student benefits of combining cooperative team learning strategies structured in an inter-group competition.

### *Experiential Learning*

When utilizing Cooperation-Competition in professional preparation classes, the application of team projects and problem-based cases is essential in affording opportunities for students’ experiential learning. The very essence of student learning is grounded in the experiences they are afforded in their respective sport management classes and programs. Learning occurs whenever an experience (or event) is

transformed through either internal reflection on the event or active manipulation of the external world (Kolb, 1984). Employing “real world” cases in sport management content areas affords a valuable team problem solving experience and supports the advantages of the cooperation-competition model (Kinzie, Hrabe, & Larsen, 1998). The purpose in utilizing cooperative team learning strategies in a genuine, competitive, sport-oriented environment is grounded in the benefits of this balanced learning experience. Experiential Learning (EL) is an instructor-facilitated, student-centered venture that plays a role in a comprehensive education (Kraft & Sakofs, 1988; Pike, 2003). Learning occurs through internal reflection on an experience, or through active manipulation of the external world (Kolb, 1984). Experiential Learning can be employed as a traditional practitioner-supervised internship, or as a faculty-supervised meta-discrete practicum or internship (Southall et al., 2003). Either of these experiences can be done independently or as a component of a traditional class.

#### Cooperation and Competition in the Real World

Competition is evident throughout our society, our lives, and our recorded history. It transcends time and place, as well as all manner of people (Graham, 1976). The social institution of sport embodies cultural values wherein winning is viewed as success and conflict is institutionalized through competitive contests (Eitzen & Sage, 2003). The business world and, of course, sport as a microcosm of society, are fundamentally competitive environments (Eitzen & Sage, 2003). However, many businesses are utilizing techniques such as self-managed teams, staff support groups, production departments, and team outcome-based rewards in an attempt to make every employee a contributor (Baris-Sanders, 1997). Task cohesion within a group has been positively correlated with improved performance (Anshell, 2003; Carron, 1984). In the end, it is incumbent on professional preparation programs to facilitate educational opportunities that enable our students to become both good competitors and cooperative teammates (Midura & Glover, 1998). The following application in commercial recreation preparation presents a method intended to enhance the instructor’s ability to achieve this dualistic objective through developing a cooperative learning team that functions within a ‘real world’ competitive business environment.

#### Commercial Recreation Classroom Applications

One specific cooperative-competitive learning activity that can be used in a recreation management

capstone course is a group project wherein students develop and present a grant proposal. The specific parameters of the plan are determined after consultation with a “real world” organization. For example, the organization’s Director of Development could be consulted to determine organizational needs and to establish the specific scope of the grant writing plan. An example of a specific assignment would be for students to develop a grant proposal plan for the purpose of developing a community skate-park. This may include identifying the primary stakeholders (e.g. parents, children, community parks and recreation administrators, and funding sources). Ultimately, the organization’s director, who was consulted in determining the organizational needs, would also be included in the panel evaluating the students’ group presentations of their proposals.

It should be noted that this type of assignment has been effectively employed by the authors in a variety of classes outside of commercial recreation as well, including sport management classes developing organizational structures, research methods classes developing a questionnaire, facilities classes developing risk management plans, and event management classes developing components of a comprehensive event plan. Regardless of the specific course content, we believe that these strategies for implementing a cooperative learning assignment in a competitive situation enhance students’ learning opportunities.

The objectives of these cooperative learning experiences are to not only develop students’ content knowledge, skills, and dispositions, but also their application through working in a competitive team environment. Students are encouraged to pursue established standards of performance, to recognize various measures of success, and to transfer these concepts in this and future professional applications. For example, securing a good grade in a commercial recreation class is an important measure of success for students academically, whereas securing funding through grant writing is a significant measure of success in their professional development as a commercial recreation professional. To maximize the outcomes, the expectations for student performance in any cooperative-competitive exercise should be presented in writing and discussed in-depth with the students prior to their undertaking the project. It is critical that the students understand that they are working together within their group, while at the same time competing against the other groups.

#### Group Assignments

In initially organizing a cooperative-competitive classroom assignment, the instructor should randomly assign class members into groups. Randomly assigning

students to groups does not mean haphazardly assigning them. Random assignment in this instance means using scientific random sampling procedures to assign them to groups. Of course, it is also possible to stratify each group to ensure heterogeneity or homogeneity; although the benefits of working with diverse groups are lost with homogeneous grouping. Therefore, random assignment is preferred. Depending on the project parameters, groups larger than about five tend to be problematic for students. Groups require roles to be both integrated and clearly delineated, which becomes more difficult in larger groups. Also, students' schedules often conflict as groups grow in size.

Initially it is common for students to be somewhat resistant to being assigned into groups. However, explaining that employees in organizations rarely get to determine their own work groups and are often put in situations where they have to work with people they don't know and in some instances may not particularly care for, the students come to understand, accept, and benefit from the situation. Also, by utilizing random assignment in multiple projects, or by employing self and peer evaluation of individuals and teams, students are less concerned about getting stuck with an underachiever in their group.

Random assignment of class members into groups is beneficial in a number of ways. Varying group membership leads to greater overall class cohesion. Class members who don't know, or are unfamiliar with each other are eventually required to work together. In many instances students discover talents and abilities in their peers that would have gone unrecognized had they been allowed to organize in their regular comfortable groups.

#### *Awarding the Contract*

In the grant writing example, students are aware of the procedure for awarding of the contract (declaring the winning group) at the initiation of the competitive project. A panel of experts is used to determine the winner of the competitive presentations. This panel can include the instructor of the class, a faculty member not associated with the class, a practitioner from the field (the aforementioned Director of Development), or others with expertise specific to the exercise. The panel is formed of diverse experts to ensure a realistic and objective evaluation of the teams' presentations. While awarding of the contract is determined by the panel, the determination of the grade remains solely the responsibility of the instructor. This ensures a consistent standard of performance for each assignment that is independent of the panel's configuration. The instructor should impress upon students that their appearance and the professionalism of the presentation are essential for success. In addition, it is possible for

both the content and its presentation to be factors taken into consideration in awarding the contract.

#### *Equitable Presentation Circumstances*

To ensure fair and equitable presentation circumstances, it is preferable to have each group present without the other groups present. This eliminates the possibility of a group benefiting from previous groups' presentations. We have found it useful to video tape the presentations and then view each presentation as a class at a later date. This allows students to view and evaluate their individual and team performance during the presentation. Often, few students have had the opportunity to see themselves making a presentation. This also allows less successful groups the opportunity to see what the winning group did in order to be awarded the contract. Allowing all students to reflect on each group's presentation generally takes the mystery out of the panel's decision making process. Students can see where one team fell short, or where another excelled. A brief instructor led summary of the panel's selection rationale is especially useful in conjunction with the video reviews.

#### *Student Reactions and Results*

Students may initially resist participating in cooperative-competitive exercises because they don't like group work or they want to pick their own groups. Students can also be apprehensive about the competitive nature of the exercise and its impact upon their grades. Sharing information on the grading process with students in advance, including an explanation of the competitive nature of traditional grading, fosters an environment wherein students can maintain focus on the task, rather than the consequential grade. Also, the competitive nature of work in the "real world" should be discussed, and is especially effective if it is facilitated by a professional from the field. Instructors who implement cooperative-competitive exercises can also include traditional activities and grades as well. In the end, most students come to genuinely appreciate the applied cooperative-competitive exercise as a valuable learning experience.

In the authors' experience with this type of assignment it is not uncommon for students' academic performance in cooperative-competitive team activities to exceed the initial expectations of the instructor and the panel. However, it is often the appearance and professionalism of the presentation that is the greatest challenge for students to master. Proactive instructor cues regarding appropriate professional dress and behaviors enhance team outcomes. For example, the establishment of time limits is essential. Instructors should then encourage students to carefully plan and

rehearse their presentation within these established time constraints. It is also important to limit the number of days between assigning the project and group presentations. Our experience in using this type of assignment suggests that students will spend inordinate amounts of time on this type of project unless limits are set by the instructor. The number of days students have to work on the project needs to be consistent with the value of the project in influencing their final grade in the course. In time, students come to understand how to efficiently use their preparation time and display professionalism in their presentations. Ultimately, the opportunity afforded students to develop professional skills to complement their content knowledge serves both the individual student and future employers.

### Conclusions and Implications

It is imperative that professional preparation programs afford students opportunities to maximize their professional development. There are many benefits to engaging students in a cooperative learning group activity organized within a competitive setting. The most significant benefits are to the students whose outcomes often exceed content-driven and application-based objectives. Incorporating cooperative learning in competitive environments can be accomplished across a wide range of curricular content, such as financial planning, event management, and facility management, to name a few. While this specific activity was in an upper level commercial recreation course, the exercise is appropriate for a variety of classes at a variety of diverse institutions. In addition to the course content options, variations in class level, topic preference, and the involvement of outside organizations can enhance the many diverse forms that cooperative learning in a competitive environment can assume in professional preparation.

The assessment of student performances is also an arena wrought with options. An array of activities beyond the awarding of the final contract can be employed. Having students participate in assessing their own and/or others' participation can further foster their active involvement in the learning process. For example, formal appraisal of team and member performance by each of its members is possible. Reflective discussions, journals, and interviews can be employed. As one student stated in an anonymous course evaluation: "the competitive group assignments were a pain to start with but the third time we did one it was fun and we did a really good job (we won!)." Additionally, separate assessments of the actual proposal and the formal presentation might occur. Emphasis on the intensity of competition and level of cooperation are adjustable by the course instructor as well. For example, rewards, awards, and grades might

be de-emphasized, or the level of intra-group or inter-group cooperation might be delineated differently. Instructors can also vary the predetermined objectives. Variety in the rubrics employed in assessing the outcomes serves to customize the cooperative/competitive activity in each instance. A multitude of variations are available to enhance student learning opportunities.

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## Digital Culture: Immigrants and Tourists Responding to the Natives' Drumbeat

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This paper looks at the *digital native-digital immigrant* model presented by Prensky, addresses some of the nuances of each group, and proposes the addition of another group to describe many of the non-users of technology we find throughout education. Suggestions to assist faculty in integrating appropriate technologies into their teaching are provided.

I remember walking into [our] home office one evening when David, now 21, was in high school. I watched in amazement as he talked on a cell phone and a land-line phone simultaneously, while monitoring several instant message conversations on the net, fingers flying over the keyboard. This was just his background noise to accompany his homework, which he was also doing. I remember thinking that something is going on here. I am good with computers and the net, but nothing like this (Hiemstra, 2005, ¶ 3).

In 2001, Marc Prensky, a self-admitted guru of game-based education, presented a model addressing the differences between current students and their teachers. Basing his idea on the impact that technology has had on our culture, he suggested two groups: *digital natives* and *digital tourists*. VanSlyke (2003) stated, "The native/immigrant analogy can help us understand the differences between those who are comfortable with technology and those who are not" (¶ 5). While this analogy provides a starting point for understanding the gap between the technology-immersed generation and the rest of us, it is a generalization. The purpose of this article is to embellish the analogy to address some of the nuances that have gone unaddressed, present alternative models, and discuss implications for teachers.

### Overview

To understand what Prensky is saying, it is necessary to look at a brief overview of his analogy of *digital natives* and *immigrants*. Prensky (2001) states, "Our students today are all *native speakers* of the digital language of computers, video games and the Internet" (¶ 5). Thus they get the designation, *digital natives*. Prensky continues, "Those of us who were not born into the digital world but have, at some later point in our lives, become fascinated by and adopted many or most aspects of the new technology are ... *digital immigrants*" (¶ 6). This model has created a tension between those who have been immersed in technology

from birth and those who have found themselves in the evolving world of technology. Visser (n.d.) puts it this way, "Marc Prensky coined the terms 'digital native' and 'digital immigrant' to imply a continuum of fluency with the use of digital technologies" (¶ 3). Brooks-Young (2005) provides definitions of the digital native and the digital immigrant:

dig-i-tal na-tive, *n.* A technology user under the age of 30, who was born into the digital world" (Digital Immigrants and Digital Natives: What's the Difference? section, ¶ 2).

dig-i-tal im-mi-grant, *n.* A technology user, usually over the age of thirty, who was not born into the digital world." (Digital Immigrants and Digital Natives: What's the Difference? section, ¶ 1).

Visser (n.d.) provides another important perspective by stating that *digital natives* developed their first information literacy skills "in the digital world with computers, videos, and the Internet" (¶ 4). *Digital immigrants*, on the other hand, formed their information literacy skills "in the print world" (¶ 4). This is an important distinction as we look at how these two groups interact in the classroom later in this piece.

Many sources ("A Disconnect," n.d.; Brooks-Young, 2005; Broward County Public Schools, n.d.; Feeney, n.d.) have summarized and embellished the technology behaviors of Prensky's two groups. A quiz (see [http://www.trinity.edu/departments/iraa/IRAA NEWS - FacultyStaff.pdf](http://www.trinity.edu/departments/iraa/IRAA%20NEWS%20-%20FacultyStaff.pdf)). developed by Ananthanarayanan (2004) targets the behaviors of each group. Here are some of the questions:

When you need information, you:

- Pick up a newspaper, book, or journal.
- Google it on the Internet

If you need to install a program on your computer, you:

- Read the manual.
- Pop in the CD and let the installer wizard

show you how.

You are at your best when you multi-task and parallel process.

- a. Can we just take it one at a time and step-by-step please?
- b. Bring it on, the more the merrier!

You stay connected through instant messengers, update your blog regularly, and have to have your regular fix of *Everquest* or *Halo*.

- a. What was all that again?
- b. What else is there?

According to the answer key, those who chose mostly *a*'s are digital immigrants; while those with mostly *b*'s are digital natives.

Jukes and Dosaj (2006) have created descriptions of behaviors that they feel differentiate native learners from immigrant teachers. A summary of the behaviors of digital immigrant teachers include:

- Prefer slow and controlled release of information from limited sources.
- Prefer singular processing and single or limited tasking.
- Prefer to provide text before pictures, sounds, and video.
- Prefer to provide information linearly, logically, and sequentially.
- Prefer students to work independently rather than network and interact.
- Prefer to teach "just-in-case" (it's on the exam).
- Prefer to teach to the curriculum guide and standardized tests.
- Prefer deferred gratification and deferred rewards. (see "A Disconnect," n.d., Table 1)

The behaviors of the digital native learners include:

- Prefer receiving information quickly from multiple multimedia sources.
- Prefer parallel processing and multitasking.
- Prefer processing pictures, sounds, and video before text.
- Prefer random access to hyperlinked multimedia information.
- Prefer to interact/network simultaneously with many others.
- Prefer instant gratification and instant rewards.
- Prefer learning that is relevant, instantly useful, and fun.
- Prefer to learn "just-in-time." (see "A Disconnect," n.d., Table 1)

A 2002 Pew Internet and American Life Project, *The Digital Disconnect: The Widening Gap Between Internet-Savvy Students and Their Schools* (Arafeh, Levin, Rainie, & Lenhart), reported that 78% of students between 12 and 17 were visiting the Internet. This qualitative study used focus groups to identify the Internet attitudes and behaviors of 136 middle and high school students across the U.S. In addition, approximately 200 students voluntarily shared stories of their Internet use for school. The following summarizes the findings pertinent to this discussion:

1. Internet-savvy students rely on the Internet to help them do their schoolwork;
2. Internet-savvy students described dozens of education-related uses of the Internet;
3. Many schools and teachers have not yet recognized, much less responded to, the new ways students communicate and access information over the Internet.
4. The following factors produce the disconnect: school administrators – not teachers – set the tone for Internet use at school; there is a wide variation in teacher policies about Internet use by students in and for class; students reported both engaging and poor instructional uses of Internet assigned by their teachers; the not-so-engaging uses were more typical;
5. Student see a need for professional development and support for teachers to help them better integrate the Internet into the curricula
6. Policy makers need to take the digital divide seriously and begin to understand the more subtle inequities among teenagers that manifest themselves in differences in the quality of student Internet access and use. (p. ii-v)

Arafeh et al. (2002) further summarize their findings:

Students are frustrated and increasingly dissatisfied by the digital disconnect they are experiencing at school. They cannot conceive of doing school work without Internet access, and yet they are not being given many opportunities in school to take advantage of the Internet. (p. v)

This study was conducted over five years ago. We must realize that many of these students are now sitting in our university classrooms. In 2005, Lenhart, Madden, and Hitlin conducted a follow-up study for the Pew Internet and American Life Project, *Teens and Technology: Youth are Leading the Transition to a Fully Wired and Mobile Nation*. They found that



teenage Internet users had increased by 24% and that 87% of 12- to 17-year-olds were online. The authors state, “Compared to four years ago, teens’ use of the Internet has intensified and broadened as they log on more often and do more things when they are online” (§ 2).

Jones and Madden (2002) surveyed and observed over 2,000 students from 27 colleges and universities around the United States to determine the impact of the Internet on the daily lives, and academic and social routines of college students. The study found that 20% of the participants had begun using computers when they were between 5 and 8 years old; between ages 16 and 18, all of them were using computers. Again, while this study is over seven years old, it provides us with the evidence behind the differences between many digital native students and their digital immigrant instructors.

It is important to recognize how being surrounded by all types of technology, not just the Internet, can have a palpable impact on the way digital natives prefer to process information (Jukes & Dosaj, 2006). As a result, the vast majority of teachers – with varied levels of teaching experience and technology expertise and preferences – experience a gap between their teaching styles and the learning styles of their students. Brooks-Young (2005) provides an excellent description of this gap:

Today’s students are digital natives. They come to us with very different technology-related experiences, attitudes, and expectations than we had growing up because they were born into the digital age; they don’t know anything different. Many of them have never seen a telephone with a dial, a cash register without scanning capability, or a manual adding machine (Digital Immigrants and Digital Natives: What’s the Difference? section, ¶ 4).

It can be difficult for digital immigrants to understand the comfort that so many digital natives have with all these new technologies. Jukes and Dosaj (2006) state, “They are DFL, they speak Digital as a First Language” (p. 11). Digital immigrants, however, exhibit what can be referred to as an accent. Although they are motivated by how students manipulate their digital environment,

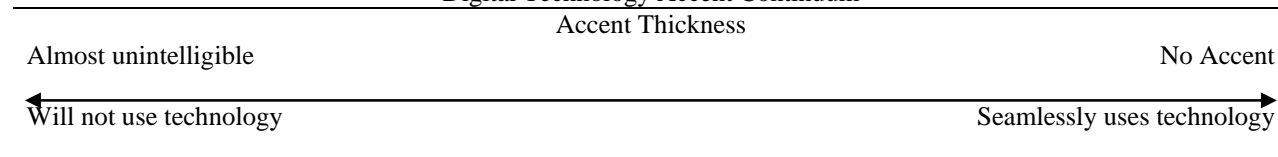
many digital immigrants who want to become more native-like continue to process and manipulate digital information as they did print information. It is important to look at the potential impact of the digital immigrant’s accent on his or her interaction with digital natives.

### The Immigrant’s Accent

In continuing his description of native and immigrant technology cultures, Prensky (2001) posits the idea of a “digital immigrant accent” (§ 7). One characteristic of worldwide immigrants is their struggle, not only with the culture, but also the language. Second-language learners struggle with vocabulary and pronunciation, and they are readily identified as non-natives, that is, immigrants. The same can be said as the digital immigrants attempt to fit into the digital culture; they speak DSL, digital as a second language (Jukes & Dosaj, 2006). Similar to second language learners, digital immigrants are attempting to learn a new way of speaking the language of technology. As new learners of any language, it is possible to become proficient in a new language, but it is a rarity to find an immigrant who has lost their native accent. This idea of an *accent* can be seen as the level of comfort with technology. The more comfortable a user is with technology use, the more daring he or she is to try new technologies, the less accent is evident; he or she seems to be able to manipulate the digital language. This brings in the idea of varied accent *thickness* – new immigrants have a thick, or heavy, accent as they speak the new language. And so it is with digital immigrants, their accents tend to vary with the level of their technology comfort. As shown in the Digital Technology Accent Continuum in Figure 1, the *almost unintelligible accent* is found in a person who will not use technology or who uses just enough to get by. On the other end of the spectrum, the *seamlessly uses technology* denotation reflects the lack of a digital accent.

According to Visser (n.d.), “the accent of their [digital immigrants’] print centered childhood lingers and the syntax and idioms of online research can remain a foreign language” (Abstract section, ¶ 1). Although *digital immigrants* attempt to speak the native language of the technology world, many find

FIGURE 1  
Digital Technology Accent Continuum



themselves printing out emails rather than reading them off the screen, sharing a website in person instead of sending the URL via email, editing documents on a hard copy rather than on the screen, looking to the Internet after looking at other information sources, and using a manual to learn a software program rather than learning it through trial and error. Prensky (2001) stated “My own favorite example is the ‘Did you get my email?’ phone call” (§ 8). Digital immigrants displaying these types of behaviors can be said to have heavy accents.

Brooks-Young (2005) provides a logical addition to Prensky’s analogy by stating, “Digital immigrants can achieve proficiency with new technologies; however, most attempt to use these new tools within the framework of their own previous learning” (Digital Immigrants and Digital Natives: What’s the Difference? section, § 4). As digital immigrants use this approach, they are able to increase the speed with which they complete familiar tasks, but are generally unable to apply the technology to new tasks. The accent is evident in Brooks-Young’s example of a digital immigrant who uses a handheld device for note taking at a meeting. Instead of beaming the notes to other attendees, he goes back to his office, prints out the notes, and distributes paper copies. While this behavior is indicative of an immigrant, it is probably situated in the middle of the continuum.

#### Conclusions on Prensky

Online blogs and listservs are filled with reactions that both agree with and rebut Prensky’s dichotomous representation of the digital culture. Hiemstra (2005) states, “If you have kids in the age range of 2-20, watch them sometime. Watch how they access information. This is the ‘digital native’ generation, the first to grow up with computers, then with the Web. They are not like us” (§ 2). Culligan (2003) sees the ubiquitous nature of technology feeding the insatiable native appetite, “Today’s youth ... have enthusiastically embraced technologies that are on the leading edge of the technology wave including live chats, instant messaging, smart mobs, blogs, wikis, modding, and more” (Blogs, Wikis, and Modding, Oh My! section, § 1). These are the idioms of the digital native culture, but digital immigrants are in dire need of an interpreter for this language. The discussion board statement of Anne L. (n.d.) shows the pervasive division between these two groups “At work, I am a ‘digital native’ island in a ‘digital immigrant’ sea” (§ 1).

VanSlyke (2002) provides another view of Prensky’s model, “As much as I agree with the appropriateness of the analogy ... I disagree with many of the assertions that Prensky draws from it” (§ 2).

According to VanSlyke, Prensky draws powerful conclusions from an over-emphasis of the differences and a de-emphasis of the similarities between the two cultures. Feeney (n.d.) adds, “While thought-provoking, his analysis of technical skills of students and educators is very simplistic. Just as all educators do not reject or resist technology; neither do all students embrace technology. However, we are all denizens of a digital world” (Why categorize technology usage? section, § 2). Considering the varied responses to Prensky’s model, we are obliged to take a look at what others have been offered to describe the changes that we are seeing in our classrooms.

#### Alternative Models

Several models have developed embellishments of Prensky’s initial categories. Coburn (2004b) suggested the addition of an “Analogists” (§ 11) group characterized by the following: “They are over my (somewhat arbitrary) 25-year-old barrier; they are terrified of any whiff of technology, and they are abundant” (§ 14). Feeney (n.d.), in her article *Digital Denizens*, suggests that adding more categories can be useful. She provides a short, non-scientific quiz to help individuals identify their category. The following summarizes Feeney’s continuum:

- *Digital recluse*: use of technology is a result of the need to function in the current environment, not used by choice; computers are prohibited in his/her home.
- *Digital refugee*: unwillingly forced to use technology; prefers hard copies, does not trust electronic resources; seeks assistance; may have grown up with technology or adopted it as an adult.
- *Digital immigrant*: willingly uses technology, but not familiar with its potential; believes technology can be used successfully for some tasks; may have grown up with technology or adopted it as an adult.
- *Digital native*: chooses to use technology for numerous tasks; adapts as the tools change; may have grown up with technology or adopted it as an adult.
- *Digital explorer*: uses technology to push the envelope; seeks new tools that provide more work, faster, and easier.
- *Digital innovator*: adapts and changes old tools for new tasks; creates new tools.
- *Digital addict*: dependent on technology; will go through withdrawal when technology is not available.

Feeney's additional descriptors provide a more thorough representation of the divide between students and instructors than that seen in Prensky's natives and immigrants model. To take Feeney's complete quiz, go to <http://loki.stockton.edu/~intech/spotlight-digital-denizens.htm>.

In keeping with the native/immigrant metaphor, and in an attempt to provide a simple model, this paper will suggest the addition of the digital tourist to Prensky's continuum. In order to provide a foundation for this addition, it is important to address some of the issues of culture.

### Understanding Culture

Immigrants are immersed in a new culture where life is different from what they know. As they learn about their new culture, its language, accepted behaviors, and nuances, they begin to acclimate and eventually fit in, sometimes even becoming undetectable. Interestingly, as educators, we probably thought that we were assisting our students in the assimilation process, helping them to become viable members of the culture and society they were born into by continuing an educational system based on a teacher-centered approach. However, the proliferation of the digital world has reversed some aspects of the assimilation process. In fact, we have seen the process of acculturation – the change in a culture facilitated by a dominant, alien society (Winthrop, 1991) – occur as digital natives have impacted the culture with a new worldview in which technology is marbled throughout their lives. Although we educators see ourselves as the dominant society, when it comes to the digital world, we are the non-dominant immigrants.

Van der Veen (2005) presented several levels of assimilation, three of which have bearing on this discussion. He states that *cultural assimilation* occurs as the “dogmas, ideologies, language and other systems of symbols of the dominant culture are adopted” (Types of Assimilation section, ¶ 1). Of particular application to the digital immigrant at this level of assimilation is the incorporation of the language and symbols of the digital world. As digital immigrants learn the lingo and are comfortable communicating with digital natives, they become a part of the new culture and are culturally assimilated.

The second level, *structural assimilation*, occurs as immigrants “become members of the primary groups within dominant ethnic populations, their families, close friends, cliques within clubs, and groups within organizations” (Types of Assimilation section, ¶ 1). If you ask digital immigrants with relatively high levels of assimilation what they do online, they will probably report involvement in blogs, wikis, podcasts, and other

digital native activities. So, they are experiencing structural assimilation.

A last level of assimilation, *identification*, occurs when “individuals no longer see themselves as distinctive and, like members of the dominant groups, stake their personal identities to participation and success in the mainstream institutions of a society” (Types of Assimilation section, ¶ 1). Digital immigrants who are highly involved in extending the uses of technology will rarely see themselves as different from digital natives. When educators achieve this level of assimilation, they participate in the tasks they see their students doing; they may even be introducing new tasks to their students by creating good pedagogical applications of the new digital tools.

Educators must decide whether or not they will move into the dominant digital society. Those who make this decision and assimilate will find their accents becoming less pronounced. They will be able to find their way around the digital landscape and willingly embrace new facets of the culture. While many of these non-natives have decided to embrace the digital culture, there are those who merely have not. In response to Coburn's (2004b) analogist category and Feeney's (n.d.) digital denizens, this author proposes the category of digital tourist.

### Digital Tourist

According to the Merriam-Webster Online Dictionary (n.d.), a tourist is “one that makes a tour for pleasure or culture.” A tour is defined as “a journey where one returns to the starting point; a journey for business, pleasure, or education often involving a series of stops and ending at the starting point.” These definitions paint a picture of temporary situations and interactions; the tourists always return home where they are most comfortable. Wells (2004) states it well:

Tourists are more likely to maintain a distance between themselves and the places that they visit. They often travel in tour groups, which offer the advantage of obtaining cursory information about the sights visited, but also have the disadvantage of discouraging individual discovery. Thus, at travel destinations tourists behave as one would before department store window displays, viewing them but not venturing into the store to browse or to buy (¶ 3).

Digital tourists display many of these same behaviors as they interact with the digital world. They embrace the language and tools of the foreign land only in order to function while they are there. We see digital tourists resist the application of technology to their

personal and professional lives. They are the ones at the grocery store who use a checkbook instead of an ATM card, waiting to fill out the check until the cashier announces the total; they are reluctant to buy a cell phone or home computer with Internet access; and they still see no purpose in paying for cable TV when they get the major channels. Digital tourists are scattered throughout K-12 and higher education classrooms. They continue to teach as they were taught and see no reason to change their instructional styles to meet the changing needs of their digital native students; they remain visitors in the digital world. These print-based teachers have classrooms full of digital natives and see no need to make any allowances. There is probably no place where the gap between these two groups is more evident than in K-16 classrooms.

### Application to Teachers

Narrowing the digital gap between the classroom teacher – immigrant or tourist – and the native student is a key concern as we look at the impact that technology has had, and will continue to have, on our daily lives. In most cases, immigrant teachers do not pose a real problem; many have the ambition to explore and experiment with the technology. In fact, in many settings the immigrant instructor has taken on the role of change agent and becomes the resident technology guru for the staff; he or she has learned how to negotiate the new culture in ways that are unnecessary to the digital native. The greatest challenge comes in helping the tourist teacher see the positive impact that effective and appropriate technology infusion can have on his or her students' learning. To this end, Battro and Denham (n.d.) stated,

The creation of new digital habits depends on the development of a new mind-set. Such a development cannot be improvised, nor can it be imposed from outside. It requires an effort of adaptation to the new features of a digital environment (§ 1).

Coburn (2004a) adds an interesting twist to this idea of adopting new technologies. He proposes using the idea of “the change function” to shed light on why some new technologies get adopted, while the vast majority winds up in the dungeon of ‘unmitigated-failure gee-whiz’ technologies” (§ 1). In his view, people will begin using new technologies when a crisis has developed that exceeds the total perceived pain of adopting a technological solution to the crisis. He has designed a formula that provides a mathematical visualization of this process:

$$\text{tech change} = f(\text{user crisis vs. user's total perceived pain of adoption})$$

That is, a change in technology use is a function of the relationship between the user's crisis and the perceived pain of adoption. As the crisis increases and numbs out the perceived pain of adopting the new technology, users, including tourist teachers, will implement the new technology. These crises can take many forms: peer, administrative, and parental pressures; monetary incentives; job security; and even personal pride. When faced with the choice, many immigrant, and some tourist, teachers will change their utilization of technology. Those who embrace technology, even experiment with its use in our classroom can provide what the non-users need to become effective users. We can share our experiences and help them create a technology-rich classroom environment that prepares our students to be competitive in the digital world.

Crisis is a major motivator for change, calling one to react to the situation causing discomfort or anxiety. But what keeps technology integration from hitting the crisis motivation point? In looking at faculty motivations for adopting technology into their teaching, Pajares (1996) states that “there is a strong relationship between teachers' educational beliefs and their planning, instructional decisions, and the classroom practices” (p. 326). Levine (2004) adds that while individual beliefs largely influence how faculty use technology in their teaching, there is also the cultural factor, in particular, the “organizational culture where they work” (p. 1). The culture of the Academy is grounded in the print world traditions. Again we are faced with the gap between the print world culture and the digital world culture: natives, immigrants, and tourists.

In order for faculty to change, they need to see examples of pedagogically sound applications of technology that take into account the skill levels of the students and the access to technology for all involved. Morrison and Bowen (2005/2006) found that when instructors improved their technology skills and integration, no change was seen by the students.

For students, using more technology made no difference; the difference they sought was at the design and access levels. Teachers still designed the learning task and only provided access to those technologies with which they were comfortable. Students seek a change in process, not just the automation of a traditional one (§ 5).

Why are we doing old things with new tools, rather than doing new things with new tools? Richards (2003)

states, “Digital Natives, who are empowered in their personal lives and immersed in interactive technology, find old teaching methods [according to Prensky] ‘horribly boring’” (§ 5). We must be intentional in making the paradigm shift before the crisis level phenomenon that Coburn refers to forces a change. We can take charge of the change by being proactive, looking at the available technologies, and applying sound pedagogical principles to their application. The following section provides suggestions for moving common print-based assignments and activities into the digital world.

### Suggestions for Application

What are the assignments and activities that you ask your students to engage in? I asked a group of

doctoral students to brainstorm this question and they came up with a list of over thirty items. Next, what technologies are available for your students to use? The same group listed over fifty technologies. Table 1 presents some suggestions for moving your student engagements from the print world to the digital world.

Obviously, these resources merely scratch the surface of available technologies and their use for assignments and activities. In addition, some of these suggestions are probably commonplace in your classrooms. It is also important to note that digital activities do not have to replace face-to-face activities; they can be used to supplement and reinforce classroom learning experiences. (For additional resources and examples of some of these applications please visit <http://coeilstu.edu/etip>. This site provides definitions, rationale and online examples of what is available.)

TABLE 1  
Moving from Print to Digital

Print World	Digital World
Lecture	Podcast, vodcast (video podcast), webcast or PowerPoint with audio posted online – load into a wiki or use Gcast; supplement with lectures found in iTunes (download the free software and search)
Hard copy books	eBooks – viewable on handhelds, iPods, laptops; use a wiki to have students develop their own text books – Wikispaces or PBWiki
Paper assignments collected in person	Electronically submitted assignments; blogs for recording student reflections – Wordpress, Blogger
Research paper using hard copy sources, word processed, paper copy submission	Research paper using online, peer-reviewed sources available through reputable databases; word processed and submitted electronically through a course management system; posting of findings in a wiki; have students search through podcasts in iTunes
Tests and quizzes taken in class – scantron or written responses	Online tests and quizzes – timed, randomized questions, graded by the course management system
Grading hard copy assignments/activities by hand	Grade electronic assignments/activities with tablet pc or graphic tablet
Classroom discussions	Online asynchronous discussions; online discussion starters that are concluded face-to-face
Group presentation – students prepare during class time and present face-to-face (f2f)	Group presentation – students use Zoho or Google Docs to collaborate on their document and present via asynchronous discussion forums, synchronous software such as Elluminate, post digital video online using Yahoo Video or YouTube; instructors can use TeacherTube
Poster board presentation	Use Flickr to post digital pictures, scanned copies of the presentation; use a wiki to present content, graphics, and link
Biography report	Students design and develop a podcast interview or role play of an historical figure; develop a digital story
Hard copy static portfolio	Dynamic electronic portfolio
Hard copy grade book; student grades posted on office door	Online grade book that students have access to 24/7
Pen pals with students in another part of the world – especially effective for second language acquisition	Use Skype for text messaging and voice over Internet communications (download free software)
Face-to-face debate	Online debate in asynchronous discussion forums, synchronous chat rooms, or virtual classrooms with avatars, e.g., Second Life (download free software)
Face-to-face field trip	Virtual field trip
Face-to-face science labs	Virtual science labs – virtual frog dissection

### Conclusion

In looking at the differences between natives, immigrants, and tourists, it is important to be aware that using technology and integrating it into our teaching is, first, a preference and, second, based on access. Not all immigrants and tourists are interested in immersing themselves in technology; so it is with students born into the digital age. Many times we hear that it is the younger teachers who are tech-savvy and the older teachers who are tech-avoidant. The propensity to immerse oneself in technology, to create a technology-rich educational environment, and to take advantage of the strengths of technology in the classroom are all functions of exposure and interest, not age. Cuban (2001), in his landmark study which resulted in the book *Oversold and Underused*, “found very little difference in computer use between veteran and novice teachers, between those with and those without previous technological experience, or between men and women” (p. 98). This strengthens the argument against pigeonholing people into dichotomous categories. As good educators, we must determine the current levels of knowledge, skill, and attitude regarding technology prior to designing professional development and learning environments.

Two questions remain. First, how do we help our *digital tourist* colleagues emigrate from their technology-barren land and become digital immigrants in 21<sup>st</sup> century education? Not all of them will leave their non-tech comfort zones. However, as they are exposed to the impact that well-designed and well-executed technology immersion can have on student engagement and student learning, they might dabble a bit here and there; they might ask, “How do you do that?” This can result in a positive impact on education.

Second, will we see change in the pedagogy and the classroom when teachers are predominantly digital natives? As students/teachers who are comfortable with technology become empowered to change the system of education as we know it now, who is to say what we will see in the K-16 classroom in the next decade? We will have to wait; only time will tell.

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## Developing a Training Program for Instructional Assistants within a Large-Scale Emporium-based Environment: A Nine-Year Evolution Towards Systemic Change

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The Virginia Tech Math Emporium is a large-scale, computer-based learning lab supporting courses designed following the *emporium model* (Twigg, 2003). In this article the authors discuss challenges and solutions faced between the years 1997 and 2006 involved with hiring, training, and evaluating the staff of instructional assistants working in the Math Emporium. The discussion is grounded in literature from the fields of training and peer tutoring. Directions for future methods of training instructional assistants are suggested.

The Virginia Tech Math Emporium began operations in August 1997. The Math Emporium is a large learning environment housing 537 computers, lounge areas, breakout rooms, and presentation space in one 56,000 square foot room. It is open to any Virginia Tech student 24 hours per day, 7 days per week during a regular semester. In a typical semester, a dozen mathematics courses make use of the facility for group activities, online quizzing or testing, access to assistance with mathematics software, or delivery of course content.

In the fall of 2006, five courses were offered at the Math Emporium that were designed using what Carol Twigg (2003) lists as the *emporium model*. Twigg credits the development of the emporium model to Virginia Tech. Since its initial development, the emporium model has been implemented at several other institutions. As documented on the website for the National Center for Academic Transformation (*National Center for Academic Transformation*, 2006), courses in math have been transformed with the emporium model (e.g., Louisiana State University, University of North Carolina at Chapel Hill) as well as in other content areas such as introduction to computing (e.g., Rockford Business College).

All of Virginia Tech's courses designed with the emporium model have a similar structure. The content for the courses is delivered online via the World Wide Web. Each semester, learners enrolled in these courses have weekly quizzes, four to five tests, and a final exam. Aside from an initial face-to-face orientation meeting, the courses are completed asynchronously. Learners prepare for their quizzes and tests in several ways including reading the online lesson pages, watching supplementary video lectures, taking practice quizzes, and interacting face-to-face with math instructional assistants.

The staff of math instructional assistants is comprised of advanced undergraduate students, graduate students, and math faculty members. There are

40 to 50 staff members in a typical semester. During the fall and spring semesters, staff members are available for questions 12 hours a day Monday through Thursday, 5.5 hours on Fridays, and for 7 hours on Sundays. The number of staff members on duty at any given time ranges from as few as 3 to 4 during the morning hours to as many as 15 in the busier evening hours. The number of staff members and staffing hours are reduced significantly during the summer sessions as a result of lower course enrollment. Math assistants answer questions regarding course content, assist with software questions, and proctor tests. A few faculty members are specially designated as staff supervisors. Supervisors ensure that the staff of math assistants is working efficiently answering questions and properly covering the learners taking proctored tests. Proper supervision and efficiency are especially important given the scale of the operation. The five courses utilizing the emporium model have an average total enrollment of 4,500 learners each semester. Several other math courses use the Math Emporium resources as well. The 537 computers are routinely occupied with learners taking tests and otherwise working on their emporium coursework. The development of a training program to prepare the math assistants to help these learners will be discussed in the following sections.

### The Early Years

When the Math Emporium opened in August 1997 it was the first facility of its kind in the United States and quite possibly in the world. It was created to support courses utilizing the emporium model, which was a new concept as well. The full extent of the training or special skills necessary for the instructional assistants working in the Math Emporium was not known. Undergraduate math assistants were recruited by the tutoring lab coordinator based on their perceived ability to tutor mathematics. A general advertisement was circulated to students enrolled in math courses and



interested students applied for positions. The application process consisted of a paper application and a recommendation from a Virginia Tech mathematics faculty member. Faculty submitting recommendations were asked to address the applicant's math ability, interpersonal skills, and reliability. Successful applicants were typically those with demonstrated proficiency in at least the first year of the calculus sequence for engineers and those who were given excellent recommendations by faculty. Additionally, graduate assistants from the math department would work routinely at the Math Emporium, either as their full assignment, or as a component of courses they were teaching. Math department faculty worked at the Math Emporium when they were teaching a course that utilized the Math Emporium, either in part or completely, as a course offered in the emporium model.

The use of undergraduate and beginning graduate students as assistants in the lab has provided two benefits. Learners benefit by having just-in-time access to one-on-one mentoring and guidance. Further, learners may identify more with assistants in their peer group, thus decreasing learners' anxiety to ask questions. The one-to-one guidance by peers is a strategy successfully employed by other non-traditional instructional environments employing a large number of peer instructional assistants such as the foreign language program at Ohio State University (Silva, Macian, & Mejia-Gomez, 2006). The Ohio State and other programs document the advantage of utilizing peers as instructional mentors in that they are more experienced and yet still accessible to learners in their same peer group (Eby & Gilbert, 2000; Silva et al., 2006). The math department has also realized a financial benefit. Employing the services of 25 to 30 undergraduate assistants, working an average of eight hours per week, has provided more contact hours of assistance than would have been financially possible using full-time faculty. Continuing to provide the learning support that students need and deserve while meeting the financial limitations in higher education environments, particularly in regards to issues of scale, is a documented challenge. Moreover, the employment of instructional assistants has been identified as a workable solution (Dornsife, 1999; Harris, 1999; Osborne, Norman, & Basford, 1997; Silva et al., 2006). Osborne, in particular, points to undergraduate assistants as a valuable resource.

During the 1997-1998 academic year the staff was supporting two courses offered through the emporium model. There were also components of other more traditionally offered courses that made use of the technology resources available at the Math Emporium. The bulk of learner questions came from approximately 2,500 students enrolled in the emporium-designed courses. Staff-learner interactions were almost always

one-to-one interactions initiated by the learner. When learners requested help from the staff, a staffer would initiate a one-on-one tutoring session with the learner, perhaps providing mini-lectures on the topic of interest, or guiding the learner through the available resources for the course of interest to make sure the learner had attempted to find help prior to requesting personal assistance. If it was apparent that the learner had made no attempt to find solutions before asking for help, staffers using the guiding approach would ask the learner to work through the resources on their own and, if they needed it, to ask for help later. If it was determined that a learner had made a legitimate attempt to find an answer to a question, then the staffer would offer some assistance specific to the problem at hand. The one-to-one, just-in-time conditions allowed for a customized response from the instructional assistant tailored to the individual learner's needs and perceived circumstance.

Faculty supervisors mentoring the staff at the Math Emporium were quick to recognize the value of the guiding approach. The guiding approach informs the learners about the resources available to them and forces them to make some attempt at learning the material before requesting assistance, pro-actively addressing an identified concern of learners not doing the work (Dornsife, 1999). As the learners are acclimated to the guiding technique, this method reduces the number of basic questions for the staff allowing them to concentrate their time assisting learners with more difficult questions or concepts. The ability of senior staff and faculty to shift time from the more routine student inquiries to the more complex ones is a benefit of employing students as peer tutors/mentors. This benefit is observed in similar instructional programs in other disciplines including communications (Ross, 1990).

The staff developed a set of best practices for working in the Math Emporium including staying visible to learners by walking or standing; asking the learners to explain how they arrived at the point where they needed help; directing learners to relevant online resources; and never writing out solutions, but instead asking the learners to write as they received explanation. The math emporium's guiding technique highlights an important pedagogical shift that all instructional assistants must make in such a non-traditional learning environment as the emporium where the emphasis is not on one-to-many group instruction but rather on one-to-one learning support. As Dornsife (1999) points out in his discussion of training writing center peer tutors, the pedagogical focus of such training, regardless of discipline, must be "to assess what the client [learner] and client's professor want, and to respond accordingly as a surrogate or 'third party'" (p. 252). Such a pedagogical

approach is, by necessity, quite different from the still common direct instruction approach of the classroom. The pedagogical shift does mirror certain cognitive learning theories and corresponding instructional approaches. For example, Gagne's (Gagne, Briggs, & Wager, 1992) nine events of instruction illustrate a similar shift from "knowledge presentation" to "instructional support" as learners must move from early knowledge acquisition to practice.

Various methods were used to disseminate those practices to the staff of math assistants. Email message lists, regular staff meetings, and mentoring by the faculty supervisors were all utilized. The email message lists evolved into a mechanism for finding substitutes should someone need to miss a shift. While this was a necessary function, it was not helpful with training. Regular meetings of the staff were problematic from their inception. As the staff was comprised of students and faculty who were typically working part-time at the Math Emporium, classes, committee work, and various other responsibilities made finding a convenient meeting time for the large staff impossible. Mentoring by the faculty supervisors proved to be the most effective method of keeping the staff up to speed on current issues or training the occasional newly-hired staff member.

One faculty member experimented with ad hoc, just-in-time training to help the staff with a particular course. He would spend several hours per day at the Math Emporium observing the difficulties learners had with that particular course. Then he would pull aside a handful of staff members and coach them on effective ways to guide the learners through their problems. As shift changes brought in new staff, and even as the learners' problems changed, this faculty member would repeat his coaching process. This just-in-time training was a valuable tool for staff development, but it was short lived. It was a volunteer effort on the part of the faculty member and it required a substantial amount of his time. As course assignments changed and interest in other projects took precedence, this faculty member moved on and the just-in-time sessions were abandoned.

By the end of the 1998-1999 academic year the Math Emporium had been open for two years and the guiding philosophy of helping learners was firmly in place. However, the initial staff began to move on or graduate. Thus, there was a need to train a large group of new hires before the next fall semester.

### The First Training Workshop

The first training workshop took place in August 1999 the week before the fall semester began. A listing of the workshop sessions is provided in Appendix A. The workshop consisted of three and a half days of

sessions focused on software training and the guiding philosophy that had been in use for the previous two years, both situated in the context of courses utilizing the Math Emporium. Sessions were a mix of instructor-led information presentation, hands-on practice for the participants, group discussion, and role-playing. Logistical matters of working in the Math Emporium, such as how to fill out a wage employee timesheet and proper protocols for finding substitutes were also included in the workshop.

All undergraduate and graduate student staff members for the coming semester were required to attend the workshop and the faculty members with Math Emporium assignments were invited as well. Although we did not require faculty member attendance, it is a strategy recommendation offered by similar, non-traditional instructional environments. For example, Dornsife (1999) advocates for including faculty and student instructional assistants in the same training programs in his experience of initiating a large-scale peer tutoring program in a university writing center, particularly given a traditional organizational climate of "providing students with 'degreed' professional instruction" (p. 247). The close association of faculty and student staff members through shared training and other means can help to integrate student staff members into the larger departmental community and culture (Dornsife, 1999; Eby & Gilbert, 2000).

The main goal of the workshop was to give the participants enough experience with the course materials to get them easily through the first two weeks of their new jobs and also to explicate the guiding method that they would soon be using. It was anticipated that the training workshop would encourage feelings of professionalism and initiate a sense of community among the staff. The context of the workshop was essential. All of the workshop participants had excellent math skills, but not all were familiar with the courses making use of the Math Emporium. In particular, participants needed practice with courses that used Microsoft Excel or business terminology. Most of our math and engineering major participants had little, if any, experience with a business context. However, these business-related tools and concepts were needed for a business calculus course utilizing the Math Emporium.

The workshop concluded with oral *competency interviews* administered by the supervisor staff. All undergraduate student staff members were required to participate in a 15-minute, face-to-face interview with one of the supervisors. The interviews were casual conversations about what was covered in the training workshop. Participants might be asked how they would respond to certain learner questions or be asked to perform a specific task with a software package. The interviews served as a way to obtain information about

what was done well in the workshop and what might need improvement. Also, since the interviews were announced on the first day of the workshop, their mere existence served as a motivating factor for the participants. Undergraduate student employees were told that they could not begin their job without a successful interview. Interviews were not required for graduate student or faculty staff members. Work assignments for graduate students and faculty members were already in place for the semester. Changes in work assignments were not feasible; thus, interviews were considered to have no substantial purpose. If the training workshop had not done its job for these two subsets of the staff, on-the-job training and mentoring in the coming weeks would have to suffice.

Once a semester began, the training workshop was supplemented weekly with what has been termed *curriculum notebooks*. The curriculum notebooks are three-ring binders maintained by the various course personnel. They contain solutions for problems with which learners may struggle and tips for how to handle the concepts for the week. Staff members can review the curriculum notebooks before a shift begins or during shifts when they are not working with learners.

The training workshop design continued with little change until there was a desire for certification of the training program by an external body. Certification by a professional association would give the training workshop validity beyond the confines of the Math Emporium itself. Also, the peer-review process of certification would improve the workshop. We decided to seek certification of our training program through the College Reading and Learning Association (*College Reading and Learning Association*, 2006).

### Certification

Certification of our training program was pursued for several reasons. A certified training program demonstrates to our learners, university administrators, and other interested parties that our program meets standards maintained by a professional association. Certification of the training program also may serve as a motivating factor during the training. Participants are informed from the outset of the training that the skills and knowledge covered in the training is part of a curriculum approved by a national organization. Further, they are informed that by completing the program they will be eligible to receive a certificate from our training program that will be recognized outside of the context of the Math Emporium, an outcome of potential benefit in future professional pursuits. Finally, the process of obtaining certification required an analysis of our operations and a period of reflection that could improve our training program.

The CRLA appeared to be the proper body from which we should seek accreditation, but an initial attempt to obtain certification of our training workshop was not successful. We decided to remove our application from consideration due to the disconnect between the certification requirements and our training workshop. The role of a Math Emporium instructional assistant is somewhat different from that of a traditional tutor and our training program did not fit well within their criteria for a training program. The CRLA criteria focused on a traditional tutor-tutee relationship in which there is time for goal setting and interactions over an extended period of time. In the Math Emporium the interactions between a learner and a staff member are substantive but not typically sustained over time. While nothing is done to purposely prevent a long-term relationship between a staff member and a learner, such relationships are not common in an emporium environment. After further consideration, however, the CRLA criteria encompassed concepts common to most of our staff members. Using their criteria as a framework for our workshop enabled us to highlight the differences, and some similarities, between the traditional role of a tutor and that of an Emporium assistant. As we spent more time considering the requirements of CRLA certification and the purpose of our workshop, the decision was made to create a new training program that would meet their criteria and better serve our needs. In addition, CRLA certification was already recognized on the Virginia Tech campus as having value and credibility. As such, obtaining the certification would give us more credibility locally as well as nationally.

### The New Workshop

By the time we were designing the new workshop, we had experienced several iterations of our initial workshop curriculum and knew what aspects could be changed or removed. Some parts of the workshop were dropped, and others added. The net effect was shortening the workshop to two full days versus the original three and a half. The sessions provided in the latest iteration of our workshop are listed in Appendix B.

Some of the additions made to the program included: tutoring videos from North Carolina State University (*A look at productive tutoring techniques*, 2006) and a session on learning theory, instructional strategies, and methods for encouraging learners. The tutoring videos serve as an excellent point of discussion for our training program. We discuss how to effectively serve as a tutor and at the same time discuss how the role of a math assistant in our operations differs from traditional tutoring.

Students were now coming to us as new staff members with seemingly better software skills, thus less time was needed orienting staff members to the software. The time spent working with software applications was reduced and focused more on the context of our course materials. A session providing an overview of the courses utilizing the Math Emporium was eliminated since our courses had become more uniform in design.

We applied for CRLA certification of our new training program. An initial certification was obtained with no modification to our training curriculum. After the one-year initial certification, we applied for, and obtained a three-year renewal of our certification.

### Assessment and Evaluation

Assessment and evaluation of the effectiveness of our staff of instructional assistants and the training workshop has been problematic. We have made attempts to gather information on individual assistants from our learners, but those efforts have proven to be unhelpful. Our largest effort in that regard was to have instructional assistants provide learners with comment cards much like ones received from servers in restaurants. Learners were to fill them out and deposit them in a box before leaving the lab. The data gathered with this method typically indicated that all of our assistants were excellent, all of the time. Further analysis of this technique revealed that instructional assistants would only provide cards to learners whom they felt confident were satisfied with their interaction. Learners often chose not to fill out the cards, as evidenced by the number of blank cards found about the lab. This data gathering technique was abandoned.

We have developed a three-tier system for assessment and evaluation of our instructional assistants and training workshop. The first tier serves to evaluate the training workshop from the perspective of the instructional assistants. Consistent with Kirkpatrick's (1998) level one "learner reaction" evaluation in his four-level evaluation model, we include evaluation surveys at the conclusion of each day of our training workshop. Workshop participants are asked to comment on the pace and content-level of the sessions as well to provide free response feedback on the sessions. In addition, we administer a follow-up survey approximately one month after the conclusion of the workshop. The instructional assistants have been on the job for three to four weeks at that point. The follow-up survey (Appendix D) asks the instructional assistants to respond to items such as, "The sessions on interpersonal skills and how to interact with students were helpful." The follow-up evaluation has proved the most useful to us. Only after

working as instructional assistants can the staff members actually assess the value of the training workshop. The follow-up survey builds on Kirkpatrick's level one evaluation by moving toward a more sophisticated, level three phase that seeks data regarding transfer of training knowledge and skills to the job context.

The second tier of the Math Emporium evaluation system evaluates the instructional assistants from the perspective of the faculty supervisors. Near the end of each semester the faculty supervisors complete evaluations of each instructional assistant who works for them. The evaluation criteria (Appendix C) are shown to the assistants during the training workshop. The supervisors' responses are based on their observations and interactions with the instructional assistants during the semester, again mimicking Kirkpatrick's (1998) recommendation to seek level three "on-the-job" evaluation data. If problems arise with individual assistants before the end-of-semester evaluations, they are handled in an ad hoc fashion on an individual basis.

Input from the learners, yet another source of Kirkpatrick (1998) level-three type data, comprises the third tier of our evaluation system. The end-of-semester course surveys (Appendix E) include questions such as "I find the math helpers at the Math Emporium knowledgeable regarding the course material", and "The math helpers at the Math Emporium provide assistance that is useful to me." Results from these surveys aid us in determining how our training workshop might be changed to better address certain courses. Our continuing certification from the CRLA does not permit us to change our training curriculum substantially, but we can certainly improve on the content offered in the workshop, if we determine that it is inadequate.

Although we do have some forms of evaluation taking place at the math emporium, we recognize that more can be done in the future, particularly in regards to expanding the types of data sources and methods and even the types of questions asked. Eby and Gilbert (2000), in their evaluation approach to using undergraduate teaching assistants in a violence and gender learning community, provide a model for enriching our evaluation processes in three distinct ways. First, they collect data using the multiple methods of survey, interview, and reflective essay. Second, they collect data from the multiple perspectives of the student, the teaching assistant, and the faculty. Third, they ask questions regarding impact not just on learners but also on teaching assistants and faculty. Such a multi-layered approach would certainly provide richer opportunities for understanding and improving current math emporium operations.

### Future Training Needs

The number of emporium-designed courses offered through the Math Emporium has steadily increased. As a result, the volume of notes necessary for our *curriculum notebook* resource for the staff has become cumbersome. The instructional assistants simply do not have time to review all of the notes necessary to prepare them to answer questions for every course. A solution may be revisiting the just-in-time training mentioned earlier in this discussion. Math faculty members coordinating the emporium-designed courses typically spend time in the lab as part of the staff of instructional assistants. Some learners use the terminology *teacher* for these faculty members, but *course facilitator* is a more cogent label. Whatever the label, these individuals may find that the time spent working with learners may be better spent training the other members of the staff.

A recent study by Hodges (2005) conducted at the Math Emporium found that while interactions with a course facilitator are viewed as positive experiences, few learners actually initiated sessions with their course facilitator. None of the participants in Hodges' study indicated that they regularly asked their course facilitator for help, and the majority of the participants indicated they had never asked their course facilitator for help. As such, the role of the facilitator in these courses is being reevaluated. Rather than having the course facilitators spend all of their time in the lab available to the learners, we are now exploring a revival of the just-in-time assistance to math instructional assistants. Multiplying the expertise of the course facilitators by having them train staff members in the just-in-time fashion described earlier may prove to be an appropriate alternative, or addition, to the current curriculum notebook method of weekly training.

### Conclusion

The initiation and establishment of a large-scale, non-traditional instructional environment such as Virginia Tech's Math Emporium certainly presents its challenges. Further, although the first of its kind, the Math Emporium can benefit from the experiences of other similar innovative instructional environments such as Dornsife's (1999) writing center peer tutoring program. In fact, Dornsife provides a useful list of questions from the proposal on through the selection, training, and maintenance phases that we recognize as valuable for anyone undertaking a similar initiative.

In the nine years of operations at the Math Emporium we have developed a staff training workshop that has worked well for our operations. The original method of recruiting student wage employees has remained unchanged with the exception of how the

students apply. What began as a paper application process is now done online. The application along with a faculty recommendation appears to be sufficient for selection. Including an interview along with a performance contract might enhance our process further. In fact, Ross (1990) provides recommendations and templates for doing so in her selection of undergraduate teaching assistants for a basic communication course that could readily be adapted to our Math Emporium and other environments utilizing instructional assistants.

As the number of courses offered in the emporium model at Virginia Tech has increased, we have begun to re-evaluate current methods of just-in-time training. Course facilitators may spend some of their time training the staff. Digital curriculum notebooks, akin to the type of hypermedia performance support systems advocated for by Tjahjono and Greenough (2002), might provide an online and searchable means for emporium staff to build and refer to a just-in-time, dynamic knowledge database. The former offers a relatively inexpensive, easy-to-implement, and, in our case, already pilot-tested strategy. The latter would certainly require more planning and resources, financial and otherwise. As we develop new models for staff training, we will pursue valid methods of assessing the performance of our instructional assistants.

Regardless of the particular approaches to selection and training of student instructional assistants in emporium-like learning environments, the benefits should not be overlooked and, indeed, may suggest more attention in the literature. Certainly, learners can benefit from the more individualized, one-to-one, peer-delivered support (Eby & Gilbert, 2000; Ross, 1990; Silva et al., 2006). In many cases, faculty and other non-student staff have noted advantages to working with student instructional assistants despite the time that may be invested in training and support. Such benefits include the re-allocation of precious time to more intellectually demanding problems and or students; the re-invigoration of teaching interests and practices that reflective opportunities with student assistants can stimulate; the overall enhancement of courses; and the opportunity to integrate the mentoring of senior students into professional practice (Eby & Gilbert, 2000; Ross, 1990; Silva et al., 2006). Beyond students and regular staff, the benefits to instructional assistants are many-fold including the opportunities to revisit knowledge and skills through the act of teaching others, explore career options in teaching, skill-build as teachers, and develop experience in a professional work environment (Dornsife, 1999; Eby & Gilbert, 2000; Ross, 1990; Silva et al., 2006) – all of which can serve these assistants well in future employment searches and circumstances. The experiences of ourselves and others suggests that, if well-planned, implemented, and

formatively evaluated and improved, the use of peer instructional assistants in higher education instructional environments (traditional and non-traditional) can be of benefit on many levels. More empirical research evidence may indeed bear these experiences out and provide further guidance as to how to implement and sustain them.

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## APPENDIX A

## Sessions Included in Initial Training Workshop

Activity	Length of Time
Introductions and Discussion of the Math Emporium Mission	20 minutes
MATLAB in the context of our course	5 hours, 20 minutes
Microsoft Excel in the context of our courses	5 hours, 30 minutes
Overview of Emporium Courses	1 hour
Being an Effective Guide	30 minutes
Discussion and Role Playing	1 hour, 15 minutes
Computer Issues and Common fixes	30 minutes
Communicating on and off the job	30 minutes
Proctoring Tests	30 minutes
Competency Interviews	15 minutes per interview

## APPENDIX B

## Sessions Included in Latest Training Workshop

Activity	Length of Time
Welcome & Ice Breaker	20 minutes
Learning Theory & Instructional Techniques	45 minutes
Tutoring Videos and Discussion	1 hour, 30 minutes
Mathematica in the context of our courses	1 hour, 30 minutes
Evaluation Criteria	20 minutes
Computer issues and Common Fixes	30 minutes
Read information stressing tutoring techniques	Homework
Discussion of reading homework	30 minutes
Business Calculus terminology and course material review	1 hour, 45 minutes
Test Proctoring Demonstration and Role Playing	1 hour
Sexual Harassment Training	1 hour
Competency Interviews	15 minutes per interview

APPENDIX C  
Supervisor Math Assistant Evaluation Form

**Math Emporium Assistant Being Evaluated (Last name, First Name):**

**Type of Assistant**

Wage/undergrad      Grad student

**Name of Supervisor Submitting Evaluation (Last name, First Name):**

**Your experience with this assistant:**

Work together regularly  
Work together some

**Arrives on time. Stays visible and lets you know where he/she is if engaged outside the main floor area. Is responsive to suggestions and task assignments.**

Excellent      Good, above average      Average      Fair, below average      Poor

**Is patient and encouraging towards students who seek help, is courteous to both students and supervisors.**

Excellent      Good, above average      Average      Fair, below average      Poor

**Makes self readily available to students and keeps attention on them while on duty. Takes initiative, circulates at frequent intervals and stays alert to students who want help.**

Excellent      Good, above average      Average      Fair, below average      Poor

**Finds constructive tasks related to Math Emporium duties even when not fully occupied with student requests for help.**

Excellent      Good, above average      Average      Fair, below average      Poor

**Accepts specific assignments (e.g. test proctoring) with appropriate demeanor.**

Excellent      Good, above average      Average      Fair, below average      Poor

**Is capable of helping with a variety of courses.**

Excellent      Good, above average      Average      Fair, below average      Poor

**Do you recommend retaining this individual at the Math Emporium?**

Yes      No

**Overall rating of this assistant:**

Excellent      Good, above average      Average      Fair, below average      Poor

**Additional comments**



APPENDIX D  
Staff Training Follow-up Survey

The following questions are yes/no, forced response:

After working at the Math Emporium for about 4 weeks, I think the training in August was a necessity.

The Mathematica practice has helped me be an effective helper.

The Excel practice has helped me be an effective helper.

The booklet I was asked to read was a good primer on what skills and knowledge are necessary for working at the Math Emporium.

The sessions on interpersonal skills and how to interact with students were helpful.

The session on learning theory and self-efficacy was helpful.

The series of tutoring videos I watched on-line was helpful in preparing me for my job at the Math Emporium.

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The following questions are open-ended, free response:

Please describe the part of the training in August that has helped you in your job at the Math Emporium the most.

If you could make one change to the training workshop for next year, what would it be?

APPENDIX E  
Sample End-of-Semester Course Evaluation

**Directions:** Please complete the following survey to help us understand what you thought about this math course. Your responses will help us improve the course. Your student number is requested for statistical purposes only. Your responses will in no way affect your grade.

Note that unless otherwise indicated, learners select their choice of response from:

Strongly Disagree   Slightly Disagree   Slightly Agree   Strongly Agree   Not Applicable

Questions constructed specifically about the staff are in **bold**.

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1. I already knew all of the material covered in this class.
2. Mathematics makes me feel uncomfortable and nervous.
3. It is clear what a student must learn in this course.
4. I gear my studying closely to just what seems to be required for quizzes and exams.
5. The lesson pages are easy to follow.
6. The illustrations and animations in the lesson pages are helpful.
7. The lesson pages prepared me for the quizzes and tests.
8. I work through all of the examples in the lesson pages before taking a practice quiz.
9. The practice quizzes are helpful to me in this course.
10. The "Note" links in my graded quizzes and tests help me understand how to work problems that I did not answer correctly.
11. I focus on the topic areas on which I have performed poorly on practice quizzes when I study for tests in this course.
12. I found the printed textbook useful.
13. The online videos for this course are helpful.
14. It is clear what a student must do in order to earn a good grade in this course.
- 15. The math helpers at the Math Emporium provide assistance that is useful to me.**
- 16. I find the math helpers at the Math Emporium knowledgeable regarding the course material.**
- 17. I find it easy to understand the helpers at the Math Emporium.**
18. Communicating with the teacher via email is easy.
19. My questions are successfully answered via email.
20. The weekly help sessions at the Math Emporium are useful.

21. Compared to other courses, I am better able to manage my workload in this course.

22. My ability to manage my time for this course improved during the semester.

23. On average how many hours per week do you spend on this course?

Less than 1

1 to 4

5 to 8

9 to 12

Greater than 12

24. This course is better than I thought it would be.

25. Overall I am satisfied with this course.

26. I would recommend this course to others.

27. I am pleased with the transportation to and from the Math Emporium.

28. There is ample workspace around each computer at the Math Emporium.

29. The lighting at the Math Emporium is sufficient.

30. The overall physical atmosphere at the Math Emporium is pleasing.

31. The noise level at the Math Emporium makes working there easy.