Preparing Students for Higher Education: The Role of Proactivity

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Proactivity is important to individual success, particularly where individuals face significant obstacles and where formal support may be lacking or difficult to access. The study tracks mature students over a one-semester university preparation course designed for returners to learning. Measures of proactivity included proactive personality, confidence to perform proactive learning behaviors and frequency of proactive behaviors. While measures of proactive personality remained relatively stable, we observed increases in both confidence to perform and the frequency of proactive behaviors over time. At the end of semester these three variables were predictive of a number of outcomes including self-assessed self-directed learning, the taking of a mastery approach to learning, and grades. We argue that issues of proactivity are under-researched in higher education. The implications for course structure and student support are discussed.

The transition between school or work and the university presents social, cultural, and academic challenges for which students may be ill-prepared (Lowe & Cook, 2003). The literature documents adaptation to the demands of university life in terms of institutional impact such as retention (Tinto, 1987), dropout (Bennett, 2003), and examination failure (Saenz, Marcoulides, Junn, & Young, 1999), but there are also poignant consequences for the individuals involved which include: apathy and detachment (Johnston, 1994), distress (Laanan, 2001), depression (Poyrazli, Arbona, Bullington, & Pisecco, 2001), and sometimes even physical consequences such as headaches (Poyrazli et al., 2001).

Universities offer induction sessions for students on admittance, and some higher education institutions offer preparation courses, usually for those who do not meet university entry requirements. These sessions and courses are designed to better prepare students for the university and avoid the negative institutional and personal consequences of failures to transition. Underpinning and informing the design of these sessions and courses is the notion that many students are not well equipped to meet the expectations that universities have of their learners (Bettinger & Long, 2005). In particular, the contrast between school education in which students are more passive and university education where students must be proactive, as well as willing and able to self-manage and take initiative is seen as a major difference (Conley, 2007). If improvements are to be made to current outcomes, the factors predicting transition and early academic success need to be understood.

Initiative taking and proactivity have been shown to be important predictors of success in the world of work generally (Parker, 1998) and for newcomers to organizations in particular (Cooper-Thomas, Anderson, & Cash, 2011). We draw upon both the educational and the organizational studies literatures in designing this study in which we monitor proactivity over the course of a one semester, 13-week university preparation course. We assess whether proactivity levels build over time and whether proactivity is predictive of success. In the sections that follow we define proactivity and examine its conceptions as a personality trait and as a skill or context dependent behavior. We relate this literature to the preparation of students for university. We then briefly review the associations between proactivity and success, introduce three measures of course outcome and review the links between proactivity and these course outcomes.

Proactive Personality

Proactivity has become a major theme within organizational psychology but has received very little explicit attention within higher education research. The notion of a proactive personality trait was developed by (Bateman & Crant, 1993). They suggest that individuals high in proactivity actively search and take advantage of different opportunities, display initiative, take action and persevere until their goals are reached (Bateman & Crant, 1993). They are motivated and dedicated to make an impact on the people around them. In contrast, individuals low on proactivity are passive, show little initiative and rely on others for change (Crant, 2000). The assertion is that these proactive characteristic traits are stable, dispositional, and inherent (Grant & Ashford, 2008). Support of proactivity as a stable disposition is drawn from studies that relate proactivity to other personality characteristics (Tornau & Frese, 2012) and studies that monitor proactive personality measures or behavioral observations over time (Buss & Craik, 1980). In our study, and consistent with Bateman and Crant (1993)'s theory and findings, we measure proactive personality and hypothesize that our student's proactive personality scores will remain stable over time:

- Hypothesis 1: Proactive personality scores will be stable over time.

Proactive Behavior

Proactive personality has been consistently associated with a number of proactive behaviors which all reflect initiative taking (e.g., Crant, 2000; Seibert, Kraimer, & Crant, 2001). They include networking, feedback seeking and general socializing (Ashford & Black, 1996). Within an educational context little research is available, but it has been proposed that students with higher proactive personalities enroll early, network with successful students and keep up with their schoolwork (Kirby & Kirby, 2006). In replication of previous studies we predict that proactive personality will be positively associated with proactive behaviors:

- Hypothesis 2: Proactive personality will be positively associated with proactive behaviors

Some issue has been taken with the notion of proactive personality as the principle determinant of proactive behaviors. Workers have noted the impact of the environment which may interact with or serve to elicit or suppress proactive behaviors (Bandura, 2001). These workers argue that context and situation may influence behavior either directly or working through attitudes or orientations (Fay & Frese, 2001). Still other workers have taken issue with the notion of proactivity as a stable measure and report that it is amenable to change through training, experience, or the way tasks are structured (Parker, Williams, & Turner, 2006) and that it is associated with well-being (Geertsuis, Jung, & Cooper-Thomas, 2013). Within an educational context, Kirby, Kirby, and Lewis (2002) demonstrated that not only did proactive thinking have a significant impact on academic performance, but measures of proactive personality significantly increased for students who received training in proactive thinking skills.

Parker, Bindl, and Strauss (2010) argued that different motivational states influence whether individuals perform proactive behaviors or not. They outlined three motivational states, one of which they summarized as "can do" which refers to perceptions of efficacy. They argued that, if an individual is confident that he or she can commit to a proactive behavior, then he or she is more likely to do so (Parker et al., 2010). Gruman, Saks, and Zweig (2006) and Wu and Parker (2012) found that measures of self-efficacy in new recruits were predictive of whether they would engage in proactive behaviors. In replication and extension of these studies we therefore predict the following:

- Hypothesis 3: Confidence to perform proactive behaviors will be positively associated with proactive behavior.

Previous researchers have monitored the incidence of proactive behaviors over time (e.g., Kim, Hon, & Crant, 2009; Seibert et al., 2001). Within the context of a program designed to develop academic skills and confidence one might expect that both self-confidence and efficacy and, in turn, the incidence of proactive behaviors would increase over time. Within organizational studies there is limited support for this notion; in studies of newcomers to organizations the frequency of proactive behaviors has been seen to stabilize or even decrease shortly after employment commences (Chan & Schmitt, 2000; Cooper-Thomas & Burke, 2012). It may be that once a new recruit is able to perform their role, the very pressing needs to proactively make contacts and find things out will fade. However, it may also be that the costs of behaving proactively increase, perhaps due to a lack of explicit permission for proactive behavior or due to concerns about how others will interpret proactive behaviors such as seeking help (Ashford, 1986; Cooper-Thomas & Wilson, 2011). In our study we selected study related proactive behaviors that should remain relevant throughout the semester long course. Therefore we predict the following:

- Hypothesis 4: Confidence to perform proactive behaviors will increase over time.
- Hypothesis 5: Proactive behavior will increase over time.

Relating Proactivity to Success at University

In the workplace, proactivity is a valuable and highly sought after asset (Crant, 2000). This is because proactive workers are linked with positive outcomes, most prominently, performance (Grant & Ashford, 2008), career success (Seibert, Crant, & Kraimer, 1999), tolerance for stress (Parker & Sprigg, 1999), participation in organizational initiatives (Parker, 1998), and, for newcomers, better adaptation to organizations (Cooper-Thomas et al., 2011). At least in part this is probably because proactive behaviors furnish employees with the skills, knowledge and contacts they need to succeed. For example, Saks, Gruman, and Cooper-Thomas (2011) demonstrated that the proactive behaviors which newcomers engaged in related positively to actual outcomes. For example, information seeking behaviors were by and large successful, thus benefiting both the newcomer and the organization (Saks et al., 2011). However, little is known about the consequences of being a proactive student.

In our study we consider three indicators of academic success: self-directed learning, mastery goal orientation, and grades. We argue that a successful university preparation course will render students able

to learn independently, motivated to achieve, and able to do well in university assessments.

The capacity for independent, autonomous, or self-directed learning is thought to be essential for academic success (e.g., Lounsbury, Levy, Park, Gibson, & Smith, 2009; Ogawa, 2011). Knowles (1975) described self-directed learning as taking initiative in identifying learning needs, creating goals, getting resources, and carrying out learning strategies, as well as evaluating outcomes of learning. With this definition, the characteristics of initiative and responsibility for a self-directed learner are very similar to those of a proactive individual. In a broad sense, self-directed learning is described as individuals taking the major responsibility in planning, carrying out, and evaluating their own learning needs and goals (Mezirow, 1985). The importance of personal responsibility is also recognized by both students and staff (Mckendry & Boyd, 2012). Logically it makes sense that students who are high on proactivity and/or high in the confidence to perform proactive behaviors will be more likely to engage in self-directed learning than will students who are low in proactive personality or who lack the confidence to perform proactive behaviors. Therefore we predict the following:

- Hypothesis 6a: Proactive personality will be positively associated with self-directed learning.
- Hypothesis 6b: Confidence to perform proactive behaviors will be positively associated with self-directed learning.

As students enter the university following their preparation course, they should not only have the skills and confidence to succeed but should also have the necessary ambition, motivation or drive. Achievement goals capture why and how people are motivated to succeed (Elliot, 2005). The theory is one of the more commonly reported approaches educational researchers use to study motivation (e.g., Darnon & Butera, 2005; Finney, Pieper, & Barron, 2004) and by researchers investigating proactivity (e.g., Kickul & Kickul, 2006; Wanberg & Kammeyer-Mueller, 2000). A two-by-two categorization of goal orientation has been described with each of the four possible combinations (mastery approach, mastery avoidance, performance approach and performance avoidance), capturing qualitatively different drivers of behavior (Elliot & McGregor, 2001; Elliot & Murayama, 2008). Others have referred to three rather than four categories: mastery (approach), performance (approach), and (performance) avoidance (Sullivan & Guerra, 2007). Individuals highly mastery orientated regard learning as a valid goal in itself and have a belief in self-improvement. Individuals highly performance orientated value external benchmarks and

recognition of performance (Mattern, 2005). An approach orientation signals that individuals are oriented towards success and an avoidance orientation implies that eluding failure is a motivator (Mattern, 2005).

A mastery orientation is reported as being associated with a range of favorable consequences including higher levels of self-efficacy, persistence, enjoyment, perseverance, effort, and positive affect (e.g., McGregor & Elliot, 2002; Pintrich, 2000). Furthermore certain behaviors such as innovation, problem solving and the use of various learning strategies are also associated with mastery orientation (Pintrich, 2000). In terms of outcomes, these include higher or better academic performance (Pintrich, 2000). Additionally, Belenky and Nokes-Malach (2012) reported that a mastery orientation can be fostered through learning.

Goal orientation and proactivity have been associated in the literature. Mastery orientation is regarded as an antecedent of proactive behaviors (Belschak & Den Hartog, 2010) as a stable trait that interacts with proactive personality to determine outcomes (Crant, 2000; Kickul & Kickul, 2006) and as a consequence of proactive personality (Major, Turner, & Fletcher, 2006). In our study, as in these earlier works, we anticipate that mastery orientation is positively associated with measures of proactivity:

- Hypothesis 7a: Proactive personality will be positively associated with mastery orientation to learning.
- Hypothesis 7b: Confidence to perform proactive behaviors will be positively associated with mastery orientation to learning.

Previous research can be interpreted as suggesting that proactivity will be associated with academic success as indicated by grades. For example, Frese, Kring, Soose, and Zempel (1996) argued that proactive behavior consists of an active search for and engagement in learning opportunities. Similarly, Ashford and Black (1996) suggested that proactive individuals exhibit proactive behaviors including information seeking, feedback seeking, being optimistic, negotiating, and networking, which are also likely to be related to success in an educational setting. Sidelinger (2010) claimed that proactivity renders students more likely to succeed. Ashforth, Sluss, and Saks (2007) associated ability to learn with proactive behaviors and, finally, as mentioned above, Kirby et al. (2002), found that students who received regular proactivity training performed significantly better academically than a control group. We predict, therefore, that proactive personality and confidence to

perform proactive behaviors will be positively associated with academic performance as indicated by student grades:

- Hypothesis 8a: Proactive personality will be positively associated with academic performance.
- Hypothesis 8b: Confidence to perform proactive behaviors will be positively associated with academic performance.

Method

Participants

Of the 248 students who were enrolled in a part-time single semester 13-week university preparation program at the University of Auckland, 181 completed the survey at Time 1, 139 at Time 2, and 130 at Time 3. This provided 85 individuals who completed the questionnaire at all three data collection points, yielding an overall response rate of 34%[1]. Demographic data was collected at Time 1 and, of the 85 individuals who completed the questionnaire at all three time points, 25% were male (male $n = 19$, female $n = 58$); 63% were New Zealand European, 11% were Maori, 11% were Pasifika, and 24% were of other ethnicities.[2] The mean age of the students was 32.34 years (range = 18-61, $SD = 11.71$).

The context for the research is a single university preparation course. None of the students entering our program had university entrance qualifications and all are over 20-years-old; about 80% usually pass this preparation course and so are eligible to apply for university. Those who do enroll for an undergraduate degree progress in a manner indistinguishable from traditional age students. During the university preparation course, cohorts of about 100 students attend lectures and tutorials and so are exposed to a typical first year undergraduate experience, but their performance is heavily scaffolded with supplementary workshops and support sessions designed to develop their skills and confidence at every step. A program manager is charged with getting to know the students and so is able to pick up academic and non-academic issues that arise for individuals. Further details can be found in Geertshuis, Cooper Thomas, Kloppenburg, and Meredith (2011).

Design and Procedure

A longitudinal design was adopted. Participants completed questionnaires at three points in time during the semester: during week 2 (Time 1), week 6 (Time 2), and week 10 (Time 3). Participants were initially approached in a lecture during the second week of the semester when the research was introduced and the opportunity to participate was given. Participation in the research was not a requirement, nor did participation or non-participation have any influence on students' grades. At each time point, questionnaires were completed in class and returned directly to a research assistant. Participants used an identity code known only to them to enable matching over data collection points.

Measures

The questionnaire included three alternative self-reported measures of proactivity and, at Time 1, included demographic questions, including age, gender, ethnicity and years since leaving school. At Time 3, a range of outcome measures were captured. All measures are described below.

Proactive personality was measured using 10 items from Bateman and Crant's (1993) proactive scale. Participants were asked to rate the extent to which they agreed with each item, such as, "If I see something I don't like, I fix it." Items were scored on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Confidence to perform proactive behaviors and proactive behavior were measured using items developed specifically to be relevant to a university preparation program. While there are several existing proactive behavior measures available—such as those for information seeking, feedback seeking, general socializing, networking, relationship building, and positive framing developed by Ashford and Black (1996)—they were unable to capture the proactive behaviors that are important in the academic setting. The items we included in the questionnaire tap into the three broad areas of behavior: problem solving, networking and relationships, and knowledge seeking. There were 12 items that were presented twice in the questionnaire. For one set of the 12 items participants were asked to indicate how confident they felt in performing the behavior (e.g., "How confident would you be in: Asking a question in class or at tutorials?"). These items were assessed on a scale of 1 (*not at all confident*) to 7 (*very confident*). For the other set of 12 items, participants were asked to reflect on the past 2 weeks and indicate how often they had engaged in the particular behavior (e.g., "How often have you: Asked a

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[1] Note that the number of students included in any analysis varies slightly, in each case being the maximum sample we had data for relevant to that analysis. These numbers are provided for each analysis. The smallest number of students in any analysis is 67, being the number who confirmed that we could have access to their academic grades.

[2] Participants were able to indicate that they belonged to more than one ethnic group, which some participants did, therefore the percentages for ethnicity add up to more than 100 percent.

question in class or at tutorials?"). This was measured on scale of a 1 (*not at all*) to 7 (*very often*). For this second set, the wording of the items was modified slightly so that the statements were in the appropriate tense. Thus, we had a total of 24 items, with 12 reflecting participants' confidence or efficacy in engaging in the behaviors and 12 reflecting the extent to which participants had engaged in the behavior in the 2 weeks prior.

Self-directed learning was measured with the 10-item Self-Directed Learning Scale used by Lounsbury et al. (2009). We adapted the scale to 7 rather than 5 points to maintain consistency with other scales in our questionnaire, retaining the same *strongly disagree* to *strongly agree* endpoints as Lounsbury et al. (2009). An example item used in the Self-Directed Learning Scale is, "I set my own goals for what I will learn."

Goal orientation was assessed using Elliot and McGregor's (2001) measure of approach and mastery achievement goals. Some minor adaptations to the wording of these items were made to make the items applicable to our context and specifically to make the items relevant to university students (e.g., "I want to learn as much as possible from this program."). Participants were asked to rate the extent to which they agreed with each item on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Course grades comprising an aggregate of three essays submitted as term work and an end of course test, comprising multiple choice and short essay questions, were recorded for those students who granted the researchers access to their records. Grades were available for 67 of the 85 students who provided data at Times 1 through 3.

Results

Descriptive statistics were calculated and all analyses were conducted using IBM SPSS Statistics 20. No outliers or other abnormalities were found. Table 1 and Table 2 show the means, standard deviations, Cronbach's alpha scores, and the intercorrelations between items used in regression analyses. All Cronbach's alphas are acceptable, being in excess of 0.85 for each measure, indicating high inter-item reliability (Cronbach, 1951).

Hypotheses 1, 4, and 5 relate to changes in proactivity measures over time and were assessed using repeated measures analyses of variance (RM-ANOVA). The repeated measures were proactive personality, confidence to perform proactive behaviors and proactive behaviors. Mean scores are shown in Figure 1. Proactive personality did not change significantly over time, $F(1, 81) = .227$, $p > .05$, which is consistent with Hypothesis 1. Confidence to perform proactive behaviors and also proactive behaviors appeared to change over time with the means showing an increase over time, $F(1, 84) = 9.06$, $p < .01$; $F(1, 81) = 3.80$, $p = .055$, respectively. The change in proactive behavior only approached significance in the RM-ANOVA, but the means suggest a consistent trend and the mean scores at Time 1 and Time 3 are significantly different, $t = 2.18$, $df =$

Table 1

Descriptive Statistics, Correlations and Alphas Among Time 1 Proactive Personality, and Confidence Variables and Time 3 Proactive Behaviors, Self-Directed Learning, Mastery Orientation, and Grades

| | Variable | M | SD | Correlations | | | | | | | |
				1	2	3	4	5	6	7	8
1	Gender	--	--	--							
2	Age	31.21	11.71	.07	--						
3	(T1) Proactive Personality	5.08	1.00	-.01	.00	(.92)					
4	(T1) Confidence in Performing	4.96	1.02	.00	-.01	.48**	(.87)				
5	(T3) Proactive Behavior	4.56	1.17	.10	.14	.39**	.39**	(.86)			
6	(T3) Self-Directed Learning	5.19	.92	.09	-.02	.45**	.50**	.44**	(.90)		
7	(T3) Mastery Approach	6.21	.97	.09	.15	.29**	.28**	.27**	.31**	(.87)	
8	(T3) Grades	5.79	2.4	.11	.09	-.03	.07	.02	.16	.19	--

Note. $N = 89$. (diagonal) = Cronbach's alpha.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 2

Descriptive Statistics, Correlations, and Alphas Among Time 3 Proactive Personality and Confidence Variables and Time 3 Proactive Behaviors, Self-Directed Learning, Mastery Orientation, and Grades

	Variable	*M*	*SD*	1	2	3	4	5	6	7	8
						Correlations					
1	Gender	--	--	--							
2	Age	30.93	11.36	-.03	--						
3	(T1) Proactive Personality	5.13	.95	.01	-.00	(.93)					
4	(T1) Confidence in Performing	5.16	1.01	.01	.06	.60**	(.89)				
5	(T3) Proactive Behavior	4.56	1.17	.10	.04	.54**	.61**	(.86)			
6	(T3) Self-Directed Learning	5.19	.92	.09	-.06	.64**	.59**	.44**	(.90)		
7	(T3) Mastery Approach	6.21	.97	.09	.13	.42**	.38**	.27**	.31**	(.87)	
8	(T3) Grades	5.79	2.40	.10	.11	.01	.29**	.02	.16	.19	--

Note. N = 116. (diagonal) = Cronbach's alpha.
*p < .05. **p < .01. ***p < .001.

Figure 1

Mean Scores for the Three Measures of Proactivity at Three Time Points
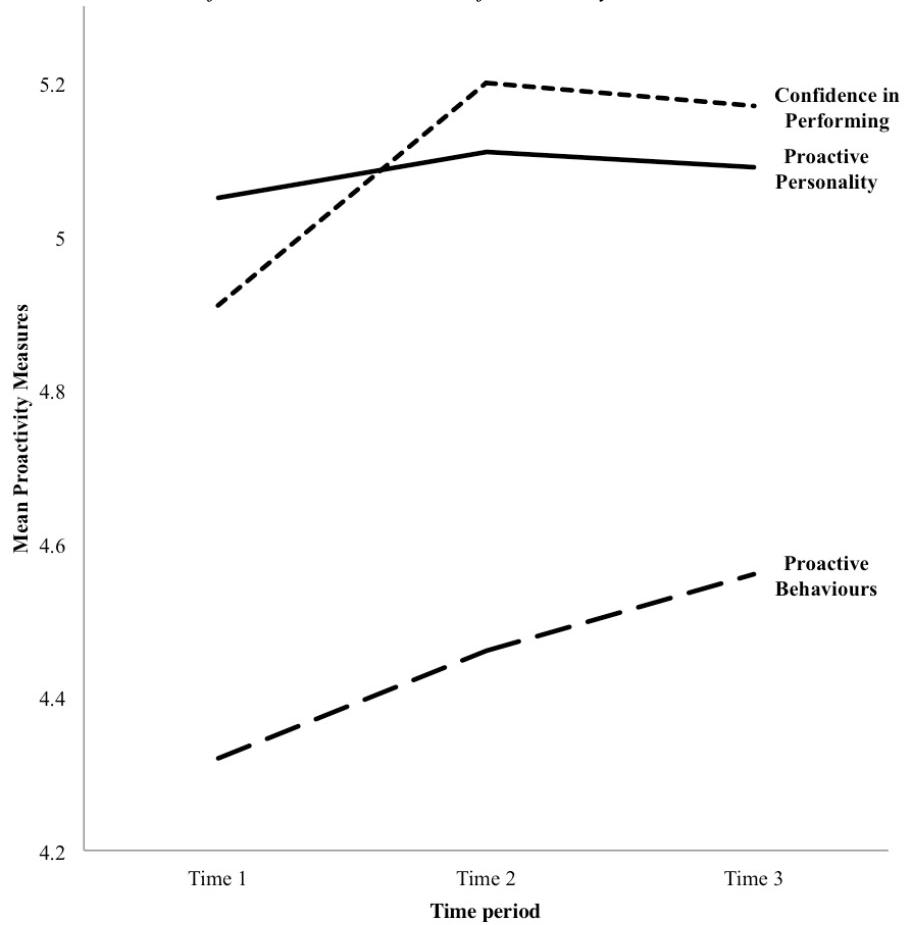
Note. Proactive personality did not change significantly over time, whereas confidence to perform proactive behaviors and actual proactive behaviors increase over time.

100, $p < .05$. Overall, our results confirm Hypotheses 1, 4, and 5 regarding the stability of proactive personality and the increase in confidence in performing proactive behavior scores and proactive behavior scores over time.

Hypotheses 2, 3, 6, 7, and 8 predict that proactive personality and confidence to perform proactive behaviors are associated positively with a number of outcomes. These hypotheses were tested using a series of multiple regression analyses. In each analysis, age and gender were entered as control variables and proactive personality and confidence to perform proactive behaviors as independent predictors. In the first set of regressions Time 1 measures of the independent variables were assessed as predictors of Time 3 outcomes (Table 3). In the second set of regressions all measures were captured at Time 3 (Table 4). While the first set of regressions offer the stronger test, being separated in time, they reflect data captured before any opportunities for the course to impact on predictor variables.

The control variables of age and gender were not significantly associated with any outcome in any analysis (see Tables 3 and 4). Hypotheses 2 and 3 predicted positive associations between proactive personality and confidence to perform proactive behaviors and proactive behavior respectively. Both hypotheses were supported with proactive personality at Time 1 and Time 3 predicting proactive behavior at Time 3, $\beta = .34$, $p < .01$; $\beta = .37$, $p < .001$, respectively, but confidence to perform proactive behaviors being significantly associated with Time 3 proactive behaviors only when confidence was assessed at Time 3, $\beta = .21$, $p > 05$; $\beta = .39$, $p < .001$, respectively.

Hypotheses 6 predicted positive associations between proactivity (H6a) and confidence to perform proactive behaviors (H6b) with self-directed learning. This was confirmed with proactive personality and confidence measured at both Time 1 and Time 3 significantly predicting self-directed learning at Time 3, $\beta = .22$, $p < .05$; $\beta = .37$, $p < .001$; $\beta = .42$, $p < .001$; $\beta = .33$, $p < .001$, respectively.

Hypotheses 7 predicted positive associations between proactive personality (H7a) and confidence to perform proactive behaviors (H7b) and a mastery orientation. Measures of proactive personality and confidence taken at Time 1 approached significance, $\beta = .19$, $p > .05$; $\beta = .15$, $p > .05$, respectively, and collectively adding these two variables to the regression analysis resulted in a significant change in R^2, $R^2 = .09$, $p < .05$. When proactive personality was assessed at Time 3, it was significantly associated with mastery orientation $\beta = .33$, $p < .05$, although confidence to perform was not, $\beta = .13$, $p > .05$. These results offer partial support for our hypotheses.

Table 3

Hierarchical Regression with Time 1 Proactive Personality and Confidence as Predictors of Time 3 Proactive Behaviors, Self-Directed Learning, Mastery Orientation, and Grades

	Predictor	Proactive behaviors	Self-directed learning	Mastery orientation	Grade
Step 1:	Gender	.11	.09	.07	.13
	Age	.02	-.04	.12	.08
	R^2	.01	.01	.02	.02
Step 2:	Proactive personality	.34**	.22*	.19	-.08
	Confidence	.21	.42***	.15	.14
	Change R^2	.24***	.33***	.09*	.02

Note. N = 107.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 4

Hierarchical Regression with Time 3 Proactive Personality and Confidence as Predictors of Time 3 Proactive Behaviors, Self-Directed Learning, Mastery Orientation, and Grades

	Predictor	Proactive behaviors	Self-directed learning	Mastery orientation	Grade
Step 1:	Gender	.10	.05	.11	.12
	Age	.02	-.07	.14	.09
	R^2	.01	.07	.03	.03
Step 2:	Proactive personality	.37***	.43***	.33**	-.17
	Confidence	.39***	.33***	.13	.36**
	Change R^2	.45***	.47***	.18***	.07*

Note. N = 107.
*$p < .05$. **$p < .01$. ***$p < .001$.

Finally, Hypotheses 8 predicted that measures of proactive personality (H8a) and confidence to perform proactive behaviors (H8b) would be associated with academic success as indicated by end of semester grades. Measures of proactive personality and confidence taken at Time 1 were not predictive of grades, $\beta = -.03$, $p > .05$; $\beta = .10$, $p > .05$, respectively. However, confidence to perform proactive behaviors captured at Time 3 were strongly and positively associated with final grade, $\beta = .36$, $p < .01$. Proactive personality assessed at Time 3 was not a significantly associated with grades, $\beta = -.16$, $p > .05$.

Discussion

In overview, this study indicates that proactivity-related variables are both predictive of important educational outcomes and amenable to change. Thus, proactive behavior is brought to the fore as an important consideration in higher education settings with significant practical implications for preparing and supporting students.

Looking at our results in more detail, the underlying premise of our research is that proactive behavior is important for students in higher education because, at this level, much of their learning depends on their own initiative (Kirby et al., 2002). For example, finding resources for assignments, clarifying feedback from tutors, and sharing information with peers are all proactive behaviors that would be expected to result in a more successful higher education experience for students. We discuss our results in reverse, first examining our findings establishing the importance of proactivity for student learners, and then considering predictors of proactivity and patterns of proactivity change over time.

We used three indicators of student academic success, namely self-directed learning, mastery orientation to learning, and academic grades. For each of these, we looked at proactive personality and confidence to perform proactive behaviors as predictors.

Self-directed learning is a specific kind of initiative taken by learners to identify and meet their learning needs and is considered central to academic success (Lounsbury et al., 2009). As hypothesized, self-directed learning was predicted by proactive personality and confidence to perform proactive behaviors both at the beginning of the course and at the end of the course (H6a and H6b). Proactive personality and confidence to perform proactive behaviors are both most distal to actually behaving proactively, with self-directly learning being a context specific self-assessment of actual behavior. Thus, perceptions of tendencies and efficacy in being proactive are associated with relevant behaviors for student learners.

Mastery orientation refers to students focusing on learning for its own sake, with an orientation towards self-improvement through engaging with the task (Pintrich, 2000). Our results for the relationships of mastery orientation with our two measures of proactivity were mixed. For these two proactivity-related measures—proactivity personality and confidence to perform proactive behaviors—when measured at the beginning of semester individually, they approached being significant predictors and jointly were predictors of mastery orientation. At the end of semester (Time 3), only proactive personality was significantly associated with mastery (H7a and H7b). Previous work offers alternative interpretations of the relationship between mastery orientation and proactivity (e.g., Belschak & Den Hartog, 2010; Crant, 2000; Major et al., 2006). It is reasonable to suppose that proactive personality co-varies with mastery in that they are overlapping constructs or that proactive personality is an antecedent of a mastery orientation. Our data do not enable us to explore these issues in detail, although our finding of an effect at Time 3 but not at Time 1 may suggest that mastery orientation is more plastic than is proactive personality, which we deemed to be stable.

Our final measure of academic success is grades. Our measures of proactivity taken at Time 1, the start of semester, were not predictive of grade, and nor was proactive personality as measured at Time 3, the end of semester (H8a). However, Time 3 confidence to perform proactive behaviors was significantly associated with grade (H8b). While these results might be influenced by difficulties in collecting accurate grade data (see Limitations section below), it suggests that proactive behavior at the end of semester is more important than at the beginning of semester.

Given our findings that, overall, proactive behavior is important for achieving academic success, we were interested to know how various measures of proactivity vary over time. In line with expectations, proactive personality did not change significantly over the semester (H1), but both confidence to perform proactive behavior and proactive behaviors themselves (H4 and H5) increased over the semester period. Hence students did show increased confidence and actual behavior reflecting the self-initiative necessary for studying.

Our final question then is what predicts proactive behavior. As anticipated, we found that proactive personality and also confidence to perform proactive behaviors both predicted actual proactive behaviors (H2 and H3). Thus, while those who are more proactive due to their personality have an advantage, the fact that confidence to perform such behaviors is predictive and that this variables changes over time suggests that confidence to behave proactively may be particularly

useful for interventions. We explore this idea further in the practical implication section below.

To summarize our findings, to varying degrees proactivity measures were found to be predictors of proactive learning behaviors, self-directed learning, mastery orientation, and academic performance. In short, students who are more proactive are more likely to score high on indicators of success. For example, students with more proactive personalities are more likely to engage in self-directed learning than those who are less proactive. However, reassuringly students' confidence to perform proactive behaviors and proactive behaviors increased over the semester, demonstrating that proactivity, as indicated by these two measures at least, is amenable to change. Our work supports and extends previous findings (Kirby et al., 2002) showing that proactivity can be developed.

Practical Implications

This study has implications for the design of teaching and learning in higher education. If proactivity determines success, and if at least some aspects of proactivity are malleable, then our attention should turn to how learner proactivity can be better enhanced. It may be that more emphasis should be placed on proactive learning than on achievement-based learning, thus re-orienting the focus of current teaching and learning. But how should this be done? Within the organizational literature proactive behaviors have been found to be enhanced by providing employees with autonomy, flexibility, and enhancement of their self-efficacy (Parker et al., 2006). It is likely that allowing students to create or develop their own learning strategies, giving them information on where to seek help, and teaching them the importance of networking can all be essential in promoting proactivity. This is a little different to the approaches advocated in efforts to develop self-directed or self-regulating learners. However, the work of Parker and Collins (2010) may take us a little further. These researchers suggested a motivational foundation to proactivity and suggest that efficacy or a confidence in ability to perform proactive behaviors is only a partial determinant of behavior. They suggest that individuals must, in addition, feel energized or enthused before they will be proactive and must also feel there is a reason to be proactive, that is, they must view the outcomes of being proactive as beneficial (Parker & Collins, 2010). Most university courses to our knowledge do not, but perhaps could, systematically build and maintain these forms of motivation. Additionally, we suggest a further motivational dimension, that of "permission to." As teachers we encounter many instances of students who know how to engage in proactive behaviors, are confident that they have the skills, are keen to try and anticipate that the outcomes may be beneficial, but feel that such behaviors may be out of their role or inappropriate. In our own teaching we have begun to expend considerable energies in explicitly seeking to foster all four motivational orientations.

Limitations

Our sample was drawn from one university preparation course, and it is important for readers to understand the delivery model we adopt as these findings may not hold universally. It may be that the provision of supplemental instruction in this course, available to all and flexible in nature, is serving to build confidence and build skills and so promote proactive problem solving, networking and information seeking. Our course does not explicitly teach proactive thinking, and students would have had no more than 1 hour exposure to explicit instruction on proactive behaviors. Potentially, the gains in confidence and proactive behavior observed here could be greatly enhanced by direct and substantial interventions

In the paragraphs above we have mentioned a number of limitations including questions over generalizability and causality. We are unable to assess the extent to which our findings apply to other university preparation programs, although given the consistency of our results with work in other areas of proactivity research there are few reasons to suppose that they will not.

Additionally, and as we allude to above, there were limitations in our data collection methodology that reduced the sample size. We tracked students across time using a unique student identifier known only to the student. However, a number of participants forgot, changed or miswrote their code, and so data were lost. Additionally, questionnaires were distributed and collected back in prior to commencement of a lecture so as not to take up teaching time. The downside of this was that students arriving even a few minutes late did not have time to complete the questionnaire. We raise these difficulties so that future research can take greater care to resolve them. For the present research, effects found with a smaller sample size suggest that the findings are robust, and hence these limitations do not reduce the importance of the findings.

We experienced some difficulties in predicting grade data. Firstly, not all participants who provided questionnaire data anonymously provided details that would allow us to access their grades. Secondly, in a minority of cases we had access to pre-course assessments of literacy that correlated to a moderate degree with end of course grades. This albeit partial and preliminary analysis suggests that the design of our study would have been improved by capturing literacy as a control variable and recording the grades of the whole sample.

Finally, our regression statistics, being correlational, do not enable us to establish causality although having monitored and demonstrated changes over time is a definite strength of the study.

Future Research

The substantial body of research on proactivity and proactive behaviors has been conducted primarily within workplaces and organizations rather in the field of education. Our findings strongly suggest that similar research conducted within higher education settings could afford us great insight. Our findings indicate that proactive students engage in problem solving, networking and information seeking behaviors, are self-directed learners, have a mastery orientation and—although we are cautious in our claims here—get better grades.

Simple replications of this initial study would be an essential first step in an effort to establish the generalizability and rigor of our findings. This study was an initial investigation, and tracking a larger cohort and continuing through into undergraduate studies using a range of measures of proactivity would establish the status of these findings.

To further advance on our findings, we need to better understand the relationship between proactivity and variables known to be associated with student success. We need to establish how to foster or develop proactivity within students and so enhance learning. As yet we do not understand the extent to which proactivity determines success within higher education, nor do we know which approaches to teaching and learning maximize students' proactive thinking and behaviors and so foster positive academic outcomes. The field is ripe for researchers willing to identify, develop and evaluate effective interventions, which schools and universities can easily implement. From a theoretical point of view further research designed to establish the extent to which self-directed learning and self-regulated learning are caused or limited by proactivity and the extent to which they are unique constructs or are a simple reflection of situated proactivity would be valuable.

Conclusion

This paper examined alternative indicators of proactivity and assessed how they are associated with each other and with proactive behaviors, self-directed learning, learning orientation and academic performance. The results indicate that proactivity is predictive of positive academic outcomes. Furthermore, it was also revealed that the proactive behaviors are plastic, suggesting that students could be helped to develop proactive behaviors and proactive thinking,

potentially enhancing their performance at the university. However, literature within education has only a handful of studies examining student proactivity which, we argue, is a serious omission. This study serves to open up a relatively untouched field within the educational literature and presents evidence that justifies extensive further work.

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