

The Relationships between Learning Approaches, Personality, and Academic Success: School Leavers versus Nonschool Leavers

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Abstract

The aim of this study was to examine the relationships between approaches to learning, personality, and academic success in a sample of 177 first-year psychology students. Most of the students ($n = 144$; 81.4%) were first-year tertiary students (school leavers); 33 students (18.6%) had more than one-year tertiary experience (nonschool leavers). The students were enrolled either on-campus or via distance education at the University of Southern Queensland and completed an online survey for course credit. Academic achievement was measured as grade point average (GPA). This paper will report the relationships among the key variables. Univariate analyses of variance showed that nonschool leavers obtained higher GPAs and scored higher on the Deep and Strategic learning approaches than did school leavers. Conversely, school leavers scored higher on the Surface approach to learning. A regression analysis showed that the Strategic approach predicted GPA. None of the five personality traits were related to academic achievement. However, Intellect and Conscientiousness were each found to predict the Deep approach to learning; Conscientiousness was found to predict the Strategic approach to learning; and Emotional Stability and Intellect were each found to predict the Surface approach to learning. The implications of these findings are discussed.

Introduction

The first year at university is crucial for students as it can often lay the platform for future academic success. Individual differences factors thought to influence student transition to higher education include students' perceptions and attitudes towards the course, approaches to learning, self-confidence, and personality (McKenzie, Gow, & Schweitzer, 2004). University administrators and academics need to better understand how such factors might impact on student learning to determine how best to cater for today's diverse student cohorts and maximise students' chances of academic success. In an era where students must "become masters of their own learning" (Zimmerman, 1990, p. 4), it is imperative that they become acquainted with their own learning preferences and understand how to study effectively.

Approaches to Learning

Researchers have long been interested in how students go about learning, what strategies they use, and why they choose particular approaches (Vermunt, 2007). Approaches to learning reflect the individual differences in strategies used to achieve a particular learning task (Diseth, 2003). The student approach to learning (SAL) tradition distinguishes between Deep, Surface, and Strategic learning approaches (see Entwistle & Peterson, 2004 for a review). A Deep approach involves finding meaning in what is being studied to maximise understanding. A Surface approach involves investing little time in the academic task and memorising information with rote-learning. A Strategic approach involves being guided by the assessment criteria and enhancing self-esteem through competition.

Research has investigated the relationships between these three learning approaches and academic success. The SAL paradigm argues that high achievement can be predicted by a Deep approach, either alone or in combination with a Strategic approach (Diseth & Martinsen, 2003; Diseth, Pallesen, Hovland, & Larsen, 2006). In contrast, low achievement can be predicted by a Surface approach to learning (Diseth & Martinsen).

Personality

Debate continues about the exact number of factors comprising personality, however, most research favours a five-factor model (Goldberg, 1999): Emotional Stability, Extraversion, Intellect, Conscientiousness, and Agreeableness. Each factor is bipolar. People low on the Emotional Stability trait (i.e., high on Neuroticism trait) tend to experience such negative feelings as humiliation and low self-esteem. Individuals high on the Extraversion trait tend to be social and self-confident. The Intellect trait, also known as Openness to Experience, is characterised by an open-mind and a willingness to experience new situations. Individuals high on the Agreeableness trait are altruistic, adaptable, and supportive. Conscientiousness is characterised as being responsible, hardworking, and dependable.

Previous research has shown most of the five personality traits to predict academic success, although the findings are varied (Diseth et al., 2006).

Conscientiousness is the trait most consistently positively correlated with academic performance (Nguyen, Allen, & Fraccastoro, 2005). Intellect has also been positively associated with academic success in undergraduate studies (Burton & Nelson, 2006). Introverted students are expected to outperform extraverts (Entwistle & McCune, 2004), however, findings are inconsistent. In contrast, Neuroticism and Agreeableness are generally not associated with academic success (Diseth et al., 2006).

Academic Success

The current study used grade point average (GPA) as the measure of academic success. GPA is a standardised measure of overall academic performance across all courses completed by the student (Zeegers, 2001). Aggregating marks over several courses leads to a more reliable criterion of academic success which in turn, results in higher correlations with measures of approaches to learning and personality (Paunonen & Ashton, 2001).

School Leavers versus Nonschool Leavers

The influence of the demographic variable age on student success is also of interest (cf. Duff, Boyle, Dunleavy, & Ferguson, 2004). Researchers have classified students into (a) traditional and non-traditional (Bowl, 2001); (b) mature-age, those aged 21 and over on March 1 of the year of tertiary entry and younger (Leder & Forgasz, 2004); and (c) recent school leavers and nonschool leavers (Zeegers, 2001). This study used the variable *school leavers* versus *nonschool leavers* to examine how age influences academic achievement. School leavers accessed higher education within a year of completing high school; nonschool leavers delayed their tertiary enrolment more than one year after completing high school (cf. Zeegers).

Previous research has shown that nonschool leavers favour the Deep approach (Duff et al., 2004; Gijbels, Van de Watering, Dochy, & Van den Bossche, 2005). In contrast, school leavers prefer the Surface approach (Richardson & Newby, 2006). Few studies, however, have investigated how the variables school, personality, and approaches to learning combine to predict academic success. This study aims to redress this imbalance using a sample of on-campus and distance students.

Nonschool leavers tend to be more successful academically than school leavers (McKenzie & Gow, 2004). For example, Wilding and Andrews (2006) found that mature age ($\beta = .12$) and the Strategic learning approach ($\beta = .22$) each predicted the average mark in 612 first-year students from a university in London. Similarly, Duff et al. (2004) examined the relationships between personality, learning approaches,

and academic success in a sample of 146 social science undergraduate students. Duff et al. performed a linear regression analysis, with age, prior academic success, and Conscientiousness as independent variables, accounting for 24.1% of the variance in academic achievement. Their findings indicated that age ($\beta = 3.55$) and personality (i.e., Conscientiousness, $\beta = 2.43$), together with prior academic success, predicted GPA.

Research Aims

The main aim of this study was to investigate the relationships between school, approaches to learning, personality, and GPA in a cohort of first-year undergraduate students. It was hypothesised that nonschool leavers would score significantly higher than school leavers on the Deep approach; school leavers would score significantly higher than nonschool leavers on the Surface approach. The Strategic approach was expected to positively predict GPA and the Surface approach was expected to negatively predict GPA. Conscientiousness and Intellect were each expected to positively predict GPA. Based on previous research, Conscientiousness and Intellect were each expected to positively predict the Deep approach; Conscientiousness was also expected to positively predict the Strategic approach; Emotional Stability and Intellect were each expected to negatively predict the Surface approach. It was further hypothesised that nonschool leavers would achieve significantly higher GPAs than school leavers in the current sample.

Method

Participants

A total of 183 first-year psychology students participated in the survey for course credit (response rate = 64.2%), however, only 177 had complete data for analysis. The sample comprised 36 (20.3%) males and 141 (79.7%) females. Participants' ages ranged from 15 to 84 years, with a mean age of 29.05 years ($SD = 12.23$). A total of 80 (45.2%) students were studying on-campus; 97 students (54.8%) were off-campus. The average age of the 68 school leavers (55 females, 13 males) was 18.48 years ($SD = 1.23$); the 109 nonschool leavers (86 females, 23 males) had an average age of 35.57 years ($SD = 11.32$). The majority of the school leavers were on-campus students (79.4%) while the majority of the nonschool leavers were distance students (76.1%).

Measures

The self-report survey was developed for use in a longitudinal study of individual differences in student

achievement. However, only those measures relevant to the current research aims will be discussed here.

The 52-item Approaches and Study Skills Inventory for Students was used to measure the three learning approaches (Entwistle & McCune, 2004). Participants indicated their relative agreement using a 5-point Likert-type scale, ranging from 1 (*disagree*) to 5 (*agree*). The 16-item Deep approach scale measures whether students (a) seek meaning, (b) relate ideas, (c) use evidence, and (d) show interest in concepts. The 16-item Surface approach scale measures whether students (a) lack purpose, (b) memorise material, (c) are syllabus bound, and (d) show a fear of failure. The 20-item Strategic approach scale measures whether students (a) organise their study, (b) can time manage, (c) are alert to assessment demands, and (d) monitor their performance. Total scale scores for both the Deep and Surface approaches could theoretically range between 16 and 80; total scores ranged between 20 and 100 for the Strategic approach scale. Entwistle and McCune reported acceptable reliabilities for the Deep ($\alpha = .84$), Strategic ($\alpha = .80$), and Surface ($\alpha = .87$) scales.

The short form of the International Personality Item Pool (IPIP, Goldberg, 1999) was used to measure the Big-Five factors of personality: Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect. Participants completed the 50-item IPIP using a 5-point Likert-type scale (1 = *very inaccurate*; 5 = *very accurate*). Total scores for each major trait could theoretically range between 10 and 50. Goldberg (1999) showed that the five IPIP scales each demonstrated acceptable internal reliabilities, with coefficient alpha estimates ranging between .79 (Conscientiousness) and .87 (Extraversion).

Academic success was measured by GPA.

Procedure

The current data was collected on-line. The total testing time for the Internet-administered survey was about 1.5 hours. Testing was carried out over a 4-month period. Personalised feedback was provided to each participant, summarising each student's learning approaches and major personality traits and outlining strategies for optimising individual learning environments.

Results and Discussion

Key Findings

Table 1 shows means and standard deviations for key variables. The average GPA was above a pass level (C) for school leavers and above a credit level (B) for nonschool leavers. A univariate analysis of variance (ANOVA) showed this difference to be statistically significant, $F(1, 175) = 15.93, p < .001, d = .67$. The nonschool leavers scored higher than school leavers on

the Deep, $F(1, 175) = 11.96, p = .001, d = .45$, and the Strategic, $F(1, 175) = 9.16, p = .003, d = .41$, approaches. Conversely, school leavers scored higher than nonschool leavers on the Surface approach, $F(1, 175) = 6.20, p = .014, d = .36$. Both school leavers and nonschool leavers scored highest, on average, on the personality trait Agreeableness. In contrast, school leavers scored lowest, on average, on the trait Emotional Stability; nonschool leavers scored lowest, on average, on the trait Extraversion.

Table 1: Summary Statistics: Learning Approaches, Personality, and Academic Success.

Scale	School (<i>n</i> = 68)		Non-school (<i>n</i> = 109)		
	α	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Learning Approaches					
Deep	.84	62.03	8.71	65.45	7.64
Strategic	.88	71.63	11.96	76.52	11.96
Surface	.81	46.82	8.87	43.59	8.95
Personality					
Extraversion	.90	34.18	7.53	30.53	8.29
Agreeableness	.75	40.86	5.43	42.70	4.53
Conscientiousness	.81	32.25	6.13	36.64	6.41
Emotional Stability	.89	28.62	7.87	31.45	8.09
Intellect	.79	36.52	6.33	37.29	5.41
Academic Success					
GPA	-	4.64	1.47	5.49	1.27

Note. α = Cronbach's alpha coefficient.

Pearson's product moment correlations were computed for all variables shown in Table 1. An alpha level of .05 was used for all statistical analyses. As shown in Table 2, school correlated negatively with GPA, and with the Deep and Strategic learning approaches, respectively. School also correlated negatively with the traits Agreeableness, Conscientiousness, and Emotional Stability, respectively. In contrast, school showed a positive relationship with the Surface approach, and with the trait Extraversion. As hypothesised, the Strategic approach correlated significantly with GPA. However, contrary to expectations, the Surface approach did not significantly negatively correlate with GPA. Further, contrary to expectations, none of the five personality traits correlated significantly with GPA. As expected, the Deep approach correlated positively with the traits Conscientiousness and Intellect; the Deep approach was also significantly correlated with Agreeableness. As expected, the Strategic approach was significantly correlated with Conscientiousness. The Surface

approach correlated negatively with both Emotional Stability and Intellect, as hypothesised.

A series of regressions were performed to further investigate the relationships between approaches to learning, personality, school, and academic success. In the following analyses, all t-test results that relate to individual predictors within a multiple regression model reflect the significance of the unique contribution of the predictor within that model. A test of the complete model was beyond the scope of this paper.

First, GPA was regressed onto the three approaches to learning, $R^2 = .17$, $F(3, 160) = 11.03$, $p = .002$, $f^2 = .21$. The result indicated that the Strategic approach positively predicted GPA, $t = 3.74$, $p = .001$. Second, the three approaches to learning were each regressed onto the five personality traits. As expected, both Conscientiousness, $t = 2.54$, $p < .001$, and Intellect, $t = 5.61$, $p < .001$, positively predicted the Deep approach, $R^2 = .27$, $F(5, 166) = 11.94$, $p < .001$, $f^2 = .37$. Further, as expected, Conscientiousness, $t = 8.88$, $p < .001$, positively predicted the Strategic approach, $R^2 = .37$, $F(5, 166) = 19.80$, $p < .001$, $f^2 = .59$. Emotional Stability, $t = -6.21$, $p < .001$, and Intellect, $t = -5.36$, $p < .001$, each negatively predicted the Surface approach, $R^2 = .36$, $F(5, 164) = 18.61$, $p < .001$, $f^2 = .56$. However, Conscientiousness, $t = -2.28$, $p = .025$, also negatively predicted the Surface approach.

The question of whether the strategic approach and school combined to predict academic success was then examined. The result, $R^2 = .18$, $F(2, 167) = 18.91$, $p < .001$, $f^2 = .22$, indicated that School negatively, $\beta = -.28$; $t = -3.92$, $p = .001$, predicted GPA; the Strategic approach positively predicted GPA, $\beta = .28$; $t = 3.91$, $p = .002$.

School and Academic Success

A key finding of this study is that nonschool leavers obtained significantly higher GPAs than did school leavers. Further, nonschool leavers scored higher than school leavers on the trait Conscientiousness. This finding indicates that nonschool leavers are conscientious and responsible, efficient, self-disciplined and organised, and have high aspirations for academic success. Additionally, nonschool leavers scored higher than school leavers on the Strategic approach. This finding implies that nonschool leavers intend to do well

in the course by organising and planning their study in response to assessment requirements and criteria; they manage time and effort effectively. As expected, Conscientiousness predicted the Strategic approach to learning. Further, the Strategic approach predicted GPA, in line with previous research. Thus, students who adopt the Strategic approach intend to succeed and are motivated to obtain the best possible mark by effectively organising their study time and learning environments.

Another key finding of this study is that nonschool leavers scored higher than school leavers on the Deep approach. This suggests that nonschool leavers are better able to relate ideas and use evidence, are more meaning-oriented in their studies, and are more interested in understanding the subject matter than are school leavers (Entwistle & Peterson, 2004). Conversely, school leavers scored higher on the Surface approach to learning suggesting that they are more syllabus bound and use more unrelated memorising in their learning (Entwistle & Peterson). Consistent with previous research, both Intellect and Conscientiousness predicted the Deep approach. Conscientious people are determined and strong-willed; individuals scoring high in Intellect are intelligent, imaginative and perceptive. It is therefore not surprising that people with these characteristics aim to understand what they learn and relate new concepts to ideas already assimilated, indicative of a Deep approach.

In contrast, Emotional Stability and Intellect traits each negatively predicted the Surface approach to learning, supporting previous research. Individuals scoring low on Emotional Stability tend to manifest anxiety and are easily stressed; those scoring low on Intellect are typically conventional and conservative and prefer straightforward things. It is therefore not surprising that people with these characteristics favour reproducing content to cope with course requirements.

Conclusion

The current findings contribute to our understanding of key differences between school leavers and nonschool leavers and the way they approach their studies. The data indicate that nonschool leavers achieve higher academic success than school leavers and are more likely to use the Deep and the Strategic approaches than

Table 2: Correlation matrix: GPA, school, approaches to learning, and personality.

Variable	1	2	3	4	5	6	7	8	9	10
1 GPA	1.00									
2 School	-.29**	1.00								
3 Deep	.12	-.20**	1.00							
4 Strategic	.30**	-.20*	.53**	1.00						
5 Surface	-.09	.17*	-.37**	-.37**	1.00					
6 Extraversion	.03	.22**	.12	.12	-.10	1.00				
7 Agreeable	.05	-.18*	.29**	.17*	-.17*	.25**	1.00			
8 Conscientious	.13	-.32**	.23**	.58**	-.21**	-.02	.20**	1.00		
9 Emotion Stab	.02	-.17*	.11	.17*	-.43**	.21**	-.01	.12	1.00	
10 Intellect	.04	-.06	.46**	.20**	-.37**	.28**	.35**	.06	.10	1.00

Note. Agreeable = Agreeableness; Conscientious = Conscientiousness; Emotion Stab = Emotional Stability.
* $p < .05$, ** $p < .01$.

are their counterparts. Further, the Strategic approach predicts academic success; the trait Conscientiousness predicts use of the Strategic approach. In contrast, school leavers are more likely than nonschool leavers to use the Surface approach. Emotional Stability and Intellect each negatively predict the Surface approach.

The current findings indicate that educators of first-year students need to ensure school leavers are equipped with self-management and study skills to help them organise their study time more effectively and to understand their learning materials at a deeper level. School leavers have different needs to nonschool leavers and structures and processes should be put in place to help all students, regardless of previous experience or study mode, make a successful transition to university. Academics teaching into the first-year program should look to develop transition programs that help those students new to tertiary life achieve success. Future research should ensure students are tracked over time to determine the role of key individual differences variables on academic success throughout their degrees. Specifically, further research with larger samples of diverse groups of students is needed to test the complete model.

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