Differences in Study Skills Knowledge between Traditional and Nontraditional Students

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Many students who attend rural college campuses and community colleges are faced with specific academic challenges that differ from other institutions of higher learning. A high percentage of these students are first-generation college students who received little or no college preparation. Many are nontraditional students who are attending college for the first time or would like to begin a second career. This study investigated study skills knowledge in a sample of students at a rural regional campus in the hopes of identifying trends in student success. Several surveys were completed by students to assess study skills knowledge and habits, personality, and self-esteem. Completing a required study skills class did not improve GPA or skill knowledge, but study skills knowledge was significantly related to overall GPA. In addition, nontraditional students demonstrated advanced study skills knowledge compared to traditional-aged college students, and several personality traits were linked with individual study skills.

Introduction

Incoming college students are sometimes dismayed when they discover that they are expected to regulate their own learning, that professors expect them to read chapters of textbooks without guidance and adequately prepare themselves for exams without reminders or in-class reviews. At rural campuses and community colleges, these issues are exacerbated by poor college preparation from their high schools and/or unfamiliarity with college-level expectations due to being first-generation or non-traditional students (Green, 2006). A significant portion of these students are unacquainted with the concept of study skills and why they are important skills to possess, nor are they aware that these skills can be learned through university-based training.

A variety of study skills and techniques have been recognized by psychologists and educators. Yet, many of these techniques have not been empirically validated. Dunlosky et al. (2013) set out to remedy this

deficiency by examining ten common study techniques: elaboration, self-explanation, summarization, highlighting/underlining, mnemonic devices, imagery, rereading, practice testing, distributed practice, and interleaved practice. Practice testing and distributed practice were pronounced most effective, followed by elaboration, self-explanation, and interleaved practice; highlighting/underlining appeared to be the least effective method (Dunlosky et al., 2013). Dunlosky and colleagues posit that one reason students continue to use ineffective study techniques is that students are not adequately instructed on which techniques to use or how to best use them.

This problem has been long-recognized in the institution of higher learning, as evidenced by the decades-long history of study skills training. Early attempts at forming specific programs aimed at study skills training appear to have originated under university counseling services (Gilbreath, 1968; Hart, 1963) and much of the early research on the effectiveness of these programs was conducted with a counseling psychology perspective (Rutkowski & Domino, 1975; Sheldon & Landsman, 1950). Gradually, these programs moved from university counseling services and became programs and courses in their own right. Unsurprisingly, these courses have evolved over time and may incorporate a variety of different skills and strategies.

The Study Strategies course at the university where this study was conducted is comprised of three main components: critical reading, critical thinking, and general study skills. Critical reading includes such topics as skimming, vocabulary, and understanding tone and technique. Critical thinking is aimed at finding bias, making associations between concepts, and drawing inferences. The study skills component of the class is perhaps the most intense. The SQ3R method (Survey, Question, Read, Recite, Review) is reviewed in detail and issues of plagiarism are discussed, as well as time management techniques, test taking strategies, active versus passive learning, class participation, and specific study habits (i.e. flash cards, mnemonic devices).

This paper will review literature on the effectiveness of these types of courses and examine the role of student characteristics, such as non-traditional status, personality, and self-esteem, before presenting empirical data collected to address the relationships between these variables.

Effectiveness of study skills classes

The decades following the advent of college-level study skills training were punctuated by attempts to quantify the results of the training on student success. One early study by McGinnis (1951) involved the use of a voluntary 'reading laboratory' which taught students specific skills such as how to read for particular points and general ideas, increase concentration, increase rate of reading, vocabulary, problem solving, and effective exam preparation. Using an objective pre/post-test design, McGinnis (1951) found that students who engaged in the training showed gains in overall reading ability.

A later investigation by Brown and Holtzman (1966) directly compared scores on a survey of study habits and college GPA. They reported a significant, medium-size correlation between GPA and a survey of study habits and found no significant gender differences in study habits (Brown & Holtzman, 1966). Scores on the study skills survey positively correlated with both SAT verbal and SAT quantitative scores.

In addition to correlational work, researchers have also tested the effectiveness of study skills training using true experimental designs. Haslam and Brown (1968) reported that an experimental group that received training in study skills showed significant increases in course grades when compared to a control group. A study by Briggs, Tosi, and Morley (1971) used the SQ3R method to increase academic performance in struggling college students. The students in the experimental group (who received this treatment) had a final average GPA of 2.25 compared to the control group's GPA of 1.83, a statistically significant advantage (Briggs, Tosi, & Morley, 1971).

Despite these efforts and demonstrations, not all researchers agree that study skills training influences college GPA. For instance, no direct relationship was found between study skill habits and GPA in a study conducted by Robyak and Downey (1978). Goldfried and D'Zurilla (1973) compared responses on a study habits survey to both peer ratings and self-ratings of behavior in academic situations, such as dealing with administrative offices, study habits, and relationships with instructors. These researchers determined that the study skills survey was a better predictor for these types of assessments than for GPA (Goldfried & D'Zurilla, 1973).

Other researchers have attempted to resolve this question by taking a closer look at the characteristics of different study skills programs

themselves. They hope to identify the features that contribute the most towards success. In one such study, Bednar and Weinberg (1970) reviewed studies of college programs in terms of their effect on GPA. These researchers found that programs that were structured, focused on practical skills, tailored to individuals, and supportive were most likely to improve student performance (Bednar & Weinberg, 1970). In addition, they recommended that study skills courses would be more effective if group counseling were an added component (Bednar & Weinberg, 1970). This is particularly interesting given the early history of these programs and their origin in college counseling departments. This sentiment is echoed by Briggs, Tosi, and Morley (1971), who argue that students should be taught how to increase self-control and studying engagement.

Research on non-traditional students

As increasing numbers of nontraditional students (i.e. students over age 25) enroll in institutions of higher learning (Justice & Dornan, 2001; Laden, 2004), universities and researchers have begun to recognize the unique challenges that these students face towards completing a college degree. Many nontraditional students balance their course load with job and family obligations. Class attendance can be affected by such factors as availability of daycare for children, illness in the family, and unsympathetic job supervisors. Study time for classes is often limited by these same factors. However, nontraditional students often bring a unique perspective to college courses, increasing the diversity of opinion and offering valuable insight and examples to class discussions. These students often enter higher education with different goals and cognitions than traditional students and this informs their approach to college (Wolfgang & Dowling, 1981; Donaldson & Graham, 1999).

This is exemplified by the differences observed in both motivation and study habits. Nontraditional students tend to report higher levels of intrinsic motivation (Klein, 1999; Bye, Pushkar, & Conway, 2007); they focus more on learning subject matter than on getting grades (Richardson, 1994; Eppler & Harju, 1997). Justice and Dornan (2001) suggest that older students enroll in college courses based on their cognitive interests, while younger students are subject to extrinsic motivators like social and parental expectations.

This is an important distinction to make, as the benefits of intrinsic motivation are far-reaching. Eppler and Harju (1997) report that students

who focus on learning as their goal tend to exhibit better academic coping, greater perseverance, and a more positive attitude towards schoolwork. In addition, Bye, Pushkar, and Conway (2007) found that higher levels of interest and motivation resulted in greater subjective well-being. It is possible that these benefits may then lead to increased rates of graduation and career success.

In addition to differences in motivation, some researchers suggest that older students approach studying differently than younger students. Justice and Dornan (2001) report that older students tend to use a comprehension approach to learning in a course, while younger students tend to concentrate on the final grade. Nontraditional students are also more likely to use advanced study strategies (such as elaboration and deeper semantic processing) and display greater cognitive monitoring (i.e., metacognition) than traditional-age students (Justice & Dornan, 2001).

Research on personality and self-esteem

Two other student characteristics that may have an effect on study behavior and academic outcomes are personality and self-esteem. A body of literature examines the relationship between personality traits and measures of cognitive performance. Several consistent findings have emerged from these analyses, particularly with the Big Five characteristics of Openness to Experience and Conscientiousness. The Big Five is a model of personality based on factor analysis and describes five broad dimensions of personality (John, Donahue, & Kentle, 1991).

Openness to Experience is related to both general intelligence (Austin et al., 2002; Zeidner & Matthews, 2000) and grade point average (Lounsbury, Welsh, & Gibson, 2005). Although Conscientiousness is positively correlated with college academic performance (Chamorro-Premuzic & Furnham, 2003; Higgins, Peterson, & Rihl, 2007; Noftle & Robins, 2007), it is negatively correlated with IQ (Moutafi, Furnham, & Paltiel, 2004). One possible reason for this discrepancy is that high ability students use their intelligence to 'skate by' academically. Conscientiousness has also been specifically correlated with better study habits (Brown & Holtzman, 1966). In addition, Kaufman, Agars, and Lopez-Wagner (2008) found that both Conscientiousness and intrinsic motivation contribute to college success in non-traditional students. They report that these traits account for an additional 6% of variance in GPA beyond the effect of intelligence.

Researchers have used alternate scales besides the Big Five to investigate the relationship between personality and academic performance. Robyak and Downey (1978) used the Myer-Briggs typology to identify Judgers and Perceivers. They report that Judgers have significantly higher GPAs than Perceivers. Robyak and Downey (1978) also compared pre- and post-course scores against the Survey of Study Habits and Attitudes (Brown & Holtzman, 1967) and found that students with higher scores on this survey had higher GPAs, decreased social and relationship problems, and better overall adjustment to college.

Self-esteem is sometimes associated with personality, and there is evidence that up to 34% of the variance in self-esteem can be accounted for using personality tests such as the Big Five personality inventory (Robins, Tracy, Trzesniewski, Potter, & Gosling 2001). Student self-esteem may also be associated with academic success. For instance, early work by Brown and Holtzman (1966) found a significant correlation between self-acceptance and study habits. This relationship been self-esteem and study habits might be particularly strong for nontraditional students, given that self-esteem tends to show increased levels and stability with age, peaking around age 60 (Orth, Robins, & Trzesniewski, 2010; Meier, Orth, Denissen, & Kuhnel, 2011).

Altogether, these results point towards an interesting relationship between personality, self-esteem, study habits, and ultimate college success. It is possible that personality factors play a greater role in academic outcomes than previously assumed, or that the effect of personality and self-esteem on academic success increases with age.

Hypotheses

Three main hypotheses were generated for this study. First, it was expected that students who completed a course in study skills would have a) higher GPAs, b) higher self-esteem, and c) greater study skill knowledge than students who had never taken the course or were currently taking the course. Second, it was hypothesized that nontraditional students would have higher scores on the study skills survey and higher GPA than traditional students. Third, it was predicted that personality traits, specifically Conscientiousness and Openness to Experience, would positively correlate with GPA and with subscores on the Study Skills Survey.

Method

Participants

Students were recruited from multiple introductory classes at a rural community-based regional campus, including students currently enrolled in a study skills course. Students who agreed to participate signed an Informed Consent Document and were given a paper version of the survey to complete. Fifty-seven students agreed to participate in this study.

Measures

Five individual surveys comprised the survey packet. The total time to complete the survey packet was approximately 45 minutes. The General Survey was designed by the experimenters to collect basic demographic information, such as GPA and if they had a) not taken, b) were currently taking, or c) already completed the study skills class.

The Sorenson Self-esteem test (Sorenson, 1998) is a 50-item questionnaire listing a series of statements that participants rate as 'true' or 'false,' for example: *I am very critical of myself and others*. Scores were calculated by assigning one point for every statement a participant marked as 'false.' Higher scores on this test indicate greater self-esteem and lower scores indicate lower self-esteem.

The Study Skills Survey was composed of 120 items divided into multiple subsections aimed at collecting information on: study time required, skill at determining priorities, time management, perseverance, procrastination tendencies, questioning skills, cognitive maps, reading rate, retention, test preparation, test taking skills, vocabulary skills, and comprehension skills. Participants were asked to rate statements on a 1-4 Likert scale (4=always, 1=never). Items included statements that related to study skills knowledge as well questions on current study habits. Some items were reverse scaled. Each subsection was totaled and then a total survey score was calculated by adding all subsection scores together. The lowest possible score on the Study Skills Survey was 120 and the highest possible score was 480, with higher scores indicating greater study skills knowledge.

The Big Five Personality Inventory was included to measure the commonly-accepted personality traits of Conscientiousness, Agreeableness, Neuroticism, Openness to Experience, and Extraversion (John, Donahue, & Kentle, 1991). This version of the Big Five contained 29 items, and has a

reliability of 0.80. Participants responded to each statement on a six point Likert scale that ranged from strongly disagree to strongly agree, with several items reverse-scored.

Results

Description of population

Of the 57 participants in this study, 44 (77.2%) identified themselves as female and 13 (22.8%) as male. In terms of class standing, respondents were classified as 36.8% freshman, 29.8% sophomore, 21.1% junior, and 12.3% of senior standing. In addition, 61.4% of students were employed outside of their school responsibilities, 40.4% had children in the home, and 45.6% of students were age 25 or older, indicating a strong non-traditional student composition. Respondents reported a variety of majors, but 30% of students in this sample were either in or planned to join the nursing program. Four participants were currently taking a study skills class, 14 had completed the class, and 39 had not taken the course. Table 1 describes several important variables to this study.

Table 1. Descriptive data of primary variables of interest (N=57)

	Min/Max	Mean	SD
Age	18-65	27.14	10.27
GPA	1.6-4.0	3.26	0.55
MHVS	6-23	15.02	4.00
Self-esteem	11-48	34.54	8.64
Study Skills	196-375	275.98	41.49

Hypothesis 1

The first hypothesis stated that students who had completed the study skills class would have greater self-esteem, increased study skills knowledge, and higher GPA. Analysis of variance (ANOVA) was chosen to test this hypothesis, using the three groups (currently in, taken, and not taken) as the independent variable. In the first analysis, no differences in self-esteem between groups were found ($F(2,55) = .037$, $p = .963$). A non-significant result also emerged when study skills knowledge was entered as

the dependent variable ($F(2,54) = .49$, $p = .62$). Finally, although a significant result was found when GPA was tested against the three groups ($F(2,44) = 3.66$, $p < .05$), post hoc analysis determined that it was in the opposite direction predicted. Specifically, students who had not taken the study skills class reported significantly higher GPAs than students who were currently in or had already taken the class.

Hypothesis 2

The second hypothesis centered on the possible advantages of age; specifically, that older non-traditional students would have higher GPAs and increased study skills knowledge. The sample population for this study afforded the opportunity to test this hypothesis (mean age = 27.14, SD = 10.27). This hypothesis was tested using bivariate correlation. As seen in Table 2, GPA was not significantly correlated with age ($r = .16$, $p = .29$). However, age did correlate with total Study Skills score ($r = .32$, $p < .02$), a relationship driven by increased scores on the Study time, Priorities, Time management, Perseverance, Vocabulary skills, and Comprehension subsections.

Table 2. Correlation matrix of primary variables of interest

	1	2	3	4	5	6	7	8	9	10	
1. Study Skills	-	.13	.42**	.31*	.32*	.21	.54***	.01	.29*	.13	
2. MHVS		-	.20	.10	.25	.18	.33*	.20	.20	.25	
3. GPA			-	.19	.16	.29*	.22	-.03	-.16	.09	
4. Self-esteem				-		.51***	.30*	.20	.31*	.36**	.61***
5. Age					-		.11	.18	.09	.22	.31*
6. Openness						-		.16	.33*	-.02	.30*
7. Conscientiousness							-		.09	.45***	.14
8. Extraversion								-		.13	.51***
9. Agreeableness									-		.21
10. Neuroticism										-	

*p<.05, **p<.01, ***p<.001

Hypothesis 3

The third hypothesis tested in this study centers around the role of personality variables; specifically how personality influences GPA and study skills knowledge. Although previous research has found correlations between GPA, Openness to Experience, and Conscientiousness (Chamorro-

Premuzic & Furnham, 2003; Higgins, Peterson, & Rihl, 2007; Lounsbury, Welsh, & Gibson, 2005; Noftle & Robins, 2007), only a relationship between GPA and Openness to Experience was found in this study (r = .29, p < .05). No significant correlations to study skills were found to Extraversion and Neuroticism, therefore only Openness to Experience, Conscientiousness, and Agreeableness were included in Table 3. As seen in Table 3, Openness to Experience was significantly correlated with Perseverance, Vocabulary, Comprehension, and Questioning skills. Conscientiousness was positively correlated with Study Time, Priorities, Time Management, Perseverance, Comprehension, Test Preparation, Test Taking knowledge, and Retention, with a significant negative correlation to Procrastination. Table 3 also displays the many significant correlations between individual subtests on the Study Skills Survey itself.

Table 3. Correlations between select personality variables and subscores on Study Skills inventory

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1. Openness	-	.16	-.02	.10	.01	-.08	.39**	.35**	.39**	.30*	.04	-.02	.23	-.10	
2. Conscientiousness		-	.45***	.40**	.47***	.42***	.43***	.12	.38**	.22	.41***	.42***	.41**	-.34**	
3. Agreeableness			-	.19	.22	.27*	.32*	-.02	.13	.10	.45***	.19	.22	-.21	
4. Study time				-	.56***	.53***	.36**	.12	.41**	.34*	.50***	.39**	.35**	-.38*	
5. Priorities					-	.59***	.40**	.12	.47***	.34**		.50***	.42***	.49***	-.68***
6. Time management						-	.46***	.20	.44***	.45***		.65***	.56***	.64***	-.50***
7. Perseverance						-	.26	.40**	.55***		.40**	.18	.57***	-.41**	
8. Vocabulary								-	.54***	.24		.12	.21	.28*	-.18
9. Comprehension									-	.43***		.41**	.40**	.54***	-.38**
10. Questioning										-	.52***	.46***	.60***	-.34**	
11. Test preparation											-	.51***	.65***	-.40**	
12. Test taking												-	.52***	-.24	
13. Retention													-	-.26	
14. Procrastination														-	

*p<.05, **p<.01, ***p<.001

Post hoc analyses

In addition to hypothesis testing, several other findings emerged. As seen in Table 3, there was a significant correlation between age and self-esteem (r = .51, p < .001). GPA was significantly correlated to Vocabulary (r = .49, p < .001), Time management (r = .34, p < .05), Comprehension (r = .50, p < .001), and total Study Skills score (r = .42, p < .01).

Based on these findings, a post hoc analysis was conducted using multiple regression to determine variables that were able to predict GPA. GPA was entered as the outcome variable with study skills knowledge, self-

esteem, age, and personality entered as factors in a stepwise regression (in that order). The only significant predictor of GPA was study skills knowledge (*Std. Beta* = .418, $F = 9.09$, $p < .01$).

Discussion

Summary of findings

Results for the first hypothesis, that completion of a study skills class would increase self-esteem and academic performance, were unexpected. There were no significant differences in self-esteem or study skills knowledge between students who were currently taking a study skills class, had completed the class, or had never taken the class. In addition, students who had never taken the class reported higher GPA than the other two groups. This finding is not in line with the majority of prior research which reports a positive academic advantage for students who received study skills training (Briggs, Tosi, & Morley, 1971; Haslam & Brown, 1968), but rather supports the research of Robyak and Downey (1978) who found no direct relationship between study skill habits and GPA. One possible explanation for the findings of the current study is that many of the students at this university are enrolled in the class based on a placement test. It is possible that baseline characteristics (both academic and socioeconomic) of students who are placed in the class contribute to differences in their later academic performance. Students with higher GPAs may be less likely to enroll in an optional study skills course. A second possible explanation is that the influence of a study skills class is relatively small and the sample size was insufficient to detect small effects. It is also possible that only certain students benefit from this type of a course or that benefits other than GPA, such as the increased rates of graduation noted by O'Gara, Karp, and Hughes (2009) or better relationships with instructors suggested by Goldfried and D'Zurilla (1973), are realized by students who complete a study skills course.

The second hypothesis, that non-traditional students would have higher GPA and greater study skills knowledge, received more empirical support. Although no relationship between age and GPA was found, older students had significantly higher scores on the Study Skills survey. According to Eppler and Harju (1997), nontraditional students focus more on learning subject matter than on getting grades. This difference seems a likely explanation for the results of this study in that older students reported

greater understanding and utilization of good study habits but these habits did not result in significantly higher grades than traditional students. This explanation is further supported by the work of Justice and Dornan (2001) who report that older students tend to use a comprehension approach to college courses, with younger students concentrating on the final grade. As mentioned earlier, Justice and Dornan (2001) found that older students are more likely to use advanced study strategies, such as elaboration and semantic processing, and display greater cognitive monitoring than traditional-age students. Their study also found no significant correlation between age and midterm grade, which is replicated by the current study.

In terms of personality variables, students with higher GPAs had higher levels of self-reported Openness to Experience. This relationship has been reported by others (e.g., Lounsbury, Welsh, & Gibson, 2005). It is possible that the link between GPA and Openness to Experience is driven by superior vocabulary and comprehension, as these sub-tests were also positively correlated with Openness. Although, GPA did not correlate with Conscientiousness, this personality trait was linked to a variety of sub-tests on the Study Skills survey. Unsurprisingly, highly conscientious students were better at managing their time and were less likely to procrastinate.

Finally, study skills knowledge emerged as a strong predictor of college GPA. Despite the different styles and demands of different college courses, it appears that students who have a greater knowledge of study skills and more frequently engage in positive study behaviors are ultimately more successful college students. Institutions of higher learning are clearly interested in predicting the future success of the students they admit (Livengood, 1992), as evidenced by the practice of admitting students and awarding financial aid based on incoming test scores, and so it is only logical that these institutions should consider study skills knowledge as an additional predictor of student success.

Limitations of the study

The greatest limitation of this study was sample size, which was particularly obvious when comparing students who have taken the study skills course against those who were currently taking it and those who had never taken it. In addition, it is the students who most need academic assistance who are placed in the study skills class which indicates that groups are unequal from the beginning. Care should be taken when generalizing these results to other student populations, given the student

sample in this study was taken from a rural, regional campus. Finally, the correlations reported in this paper should be interpreted with caution, as they may be influenced by third, unknown variables.

Future directions

Although students are generally placed in this class based on the results of a placement test, some students enroll in the class voluntarily. Treppa (1973) reported that students who voluntarily sign up for study skills classes tend to experience low family support and have lower self-esteem. It is unknown if this information continues to hold true for the more recent generation of college students, or how far this comment applies to the differences between traditional and nontraditional students, but it conflicts with anecdotal reports from nontraditional students who completed this course. These students suggest the opposite; that students who voluntarily take a course in study skills recognize the value of improved study habits and purposefully enroll in the course with a goal in mind (e.g., to be accepted into a competitive program within the university). Future work in this area may distinguish these students from those who are required to take a study skills course.

Another area worthy of investigation is the task of identifying which students will benefit the most from this course and to better operationalize possible benefits. Colleges and universities should consider age/non-traditional status, motivation (both intrinsic and extrinsic), and personality traits when determining which students should be enrolled in a study skills course. These characteristics may also influence which study techniques will be most effective for students to use (Dunlosky et al., 2013). In addition, researchers should broaden their definitions of academic success beyond a simple GPA calculation. As mentioned earlier, taking a class to get a good grade is not always synonymous with learning and comprehending on a deeper metacognitive level. Researchers may want to use retention rates and graduation rates as markers of academic success, or develop other methods of identifying and quantifying what it means to be a successful student in higher education.

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Personal Biography

Dr. Volokhov is an experimental psychologist primarily interested in working memory and student success.