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Characteristics of High Achieving Students Enrolled in an Online Economics Course

The ease in accessing classes online through the use of a computer or other more mobile devices offers students flexibility and control by providing them the freedom to arrange courses around their lives, not by the geography of the place they reside. For instance, the high school student who is interested in a career in technology and/or business does not have to be content in taking only that one business and/or technology course that is offered within the confines of his/her school walls. These students can now choose to take courses in their field of interest from schools and other institutions around the country. Over the past several years, institutes of higher learning have realized the value in offering online courses to its students for these reasons, and its students have come to rely on the availability for online courses as they work toward their academic goals. There has been a growing movement to expand this mode of course delivery to students in grades K-12, but particularly in high schools.

As more people learn and complete coursework online, there has been increasing interest by the scientific community to better understand this new learning environment and the impact it has for the online learner. This knowledge contributes to the ability to develop and implement best practices within the online teaching community. There have been many studies regarding online learning that address the online postsecondary student. The findings from these studies demonstrate a strong relationship between motivational beliefs and self-regulation, and are positively associated with increased academic performance levels. However, relatively few studies have been published that investigated students in primary and/or secondary grades learning within this medium. As the availability and popularity for online learning increases for students in grades K-12, particularly in high schools, it is important to determine whether high school students are prepared to take online courses.

It is important to note that there is a difference between post-secondary and secondary students. One noted difference can affect student self-motivation; students in post secondary education have chosen to continue their academic pursuits, while students in grades K-12 have mandatory state attendance requirements. It is essential to recognize and distinguish between these two groups when attempting to apply findings from studies conducted on students in the post-secondary grades onto the students in secondary grades. This study describes characteristics of the top performing high school students who were enrolled in an online economics course in relation to self-motivation and self-regulation. This study is important to computer and technology educators, as well as business educators to understand the needs of *every* student who chooses online learning; not only in required courses, but also courses in their field of interest; not only postsecondary students, but also secondary students. The purpose of this study was to examine the relationship between self-motivation and self-regulation and academic performance using end of course grades in high school students enrolled in an online course in Economics.

The Evergreen Education Group, in their "Keeping Pace With K-12 Online and Blended Learning in Grades K-12" (Watson, Murin, Vashaw, Gemin & Rapp, 2012) report, described the increase of high school students enrolled in state virtual schools. The report provides evidence that the online learning continues to grow, with many states having an annual growth rate of 40% or higher (see Table 1).

Table 1

Sample of States with Prominent State Virtual Schools

State Virtual School	Course Enrollments	Annual Growth	Ratio to State Population
Florida Virtual School	303,329	+17%	38.7
New Hampshire Virtual Learning Academy	15,558	+35%	24.2
North Carolina Virtual Public School	97,170	+10%	22.6
Idaho Digital Learning	17,627	+22%	21.6
Alabama ACCESS	44,332	+31%	20.2
Montana Digital Academy	6,797	+49%	15.5
South Carolina Virtual School Program	15,831	+41%	7.5
Georgia Virtual School	20,876	+45%	4.4
Michigan Virtual School	19,822	+12%	3.7

Note. Source: State high school population, http://nces.ed.gov.programs/stateprofiles/

A state virtual school is but one type of online learning environment available to students K-12 nationwide. Watson et al. (2012) list several "defining dimensions" (p. 10) of online programs that include supplemental programs, full-time schools, "organizational type" and "operational control" (p. 10), which will be discussed in more detail later in this paper.

In 2010, former Florida Governor and current chairman for the Foundation for Excellence in Education, Jeb Bush, brought 100 leaders together with backgrounds in education, government, business, technology and philanthropy to focus on ways to reform and transform this country's public schools through the use of technology. This assembly, called the Digital Learning Council (DLC), published its findings in a report entitled *"Digital Learning Now"*. The DLC recommends that every public school student have access to online courses in order to provide a more student-centered approach to academic progress. In its report, the DLC writes that "[d]igital learning offers the potential for students to study at their own pace and advance based upon competency and mastery of the material" (Excellence in Education Foundation, 2010). The DLC determined that public schools have remained unchanged since the 1950's and

no longer reflect the society from which its students belong. The DLC reports that students still sit in brick and mortar school buildings reading "outdated" (p.4) textbooks for a "set number of hours on a set number of days based primarily on an agrarian calendar" (Excellence in Education Foundation, 2010, p. 4).

Today, the DLC continues to challenge public schools to transform classrooms through technology and implement digital learning in grades K-12 to better meet the needs of the modern student. The DLC is not alone in its quest for digital learning as a common mode of course delivery in public schools. In May 2012, the Center for Public Education, National School Boards Association (CPE) published its report regarding online learning and stated that "[t]he place of digital content in public education is therefore not a matter of debate; it is inevitable" (p. 1).

Theoretical Framework

One of the foundational goals in teaching students in career and technical education, as well as business education, is to transfer responsibility of learning onto the student and away from the instructor so that graduates in these areas have developed the skills to become successful and productive entrepreneurs, business owners or other careers in their field of interest. A review of literature in this area supports the theory that students who become active agents in their own learning processes achieve a higher level of academic success than those students who are more passive players in their own learning. Research shows that those students who retain their motivation level through tasks complete the many academic and life tasks/goals required. Students who also regulate (control) their own emotions in the face of frustration during the process, while employing learned cognitive strategies, achieve a higher academic

performance level than the students with low levels of self-motivation and self-regulated learning.

A student who is able to organize and regulate his/her behavior when progressing toward a specific goal is said to be engaged in self-regulated learning (Pintrich, 2004; Schunk & Zimmerman, 2008; Zimmerman, 2002). There have been many empirical studies that have show when a student engages in self-regulated learning (SRL) s/he achieve a higher level of performance than those students who do not engage at all or who only use some of the elements of SRL (Pintrich, 2004; Ridley, Schutz, Glanz & Weinstein, 1992; Schunk & Zimmerman, 2008; Winters et al., 2008; Zimmerman 2002). The center of this process is the behavior of the student. Self-regulating behavior is the key to the level of success the student will achieve in reaching his/her goal. Many researchers studied the specific elements that define, influence and motivate student engagement of self-regulated learning, with varying conclusions. However, most can agree that self-regulated learning is an active, cyclical process that involves cognition, motivation, behavior and context.

Schunk and Zimmerman (2008) define a person who is capable of self-regulated learning (or self-regulation) as one who can undertake the process by which learners personally activate and sustain cognitions, affects, and behaviors that are systematically oriented toward the attainment of learning goals. In other words, a self-regulated learner knows how to create a plan to reach the learning goal, and can engage in self-control during the progression of working on the tasks to reach the goal, even when it becomes difficult. Throughout the process, the student assesses whether the planned task/goal had been attained as initially set forth. This self-evaluation serves to determine whether the process and results were satisfactory or whether the process requires change. This process of self-reflection also serves as a motivator for that

student to continue to use self-regulation when tackling future tasks based upon a perceived alignment to the initial plan.

Purpose and Objectives

The purpose of this study was to examine the learning characteristics of high achieving students enrolled in an online economics course during the summer of 2013. Specifically, to examine the relationship between academic performance of these secondary students and their perceived levels of self-motivation and self-regulation. The three components of self-motivation are (i) internal value, (ii) self-efficacy, and (iii) test anxiety. Internal value component is how the student assesses the importance of this course to their own goals and self-efficacy relates to the student's belief that s/he is able to do the tasks of the course, while a student's perceived level of test anxiety seeks to measure the affective response to the tasks of the course. The two components of self-regulation are (i) control and (ii) cognitive strategy use. Control is measured in the way a student perceives his/her ability to manage and control effort when working on any required task and the perceived ability to focus on the task at hand without being distracted by outside influences or diversions. The student's perceived study habits and use of learning strategies when taking a course is measured by the cognitive strategy use component of self-regulation. Objectives of this study were to:

1. Describe the self-motivation profile of the high achieving student in an online economic course.

2. Describe the self-regulation profile of the high achieving student in an online economic course.

Methodology

The study methodology involved a descriptive research design utilizing the census survey method. The population of the study consisted of 441 students (N = 117) students enrolled in a summer course for high school students called Economics. One-hundred twenty-one (*n* = 121) participants completed a survey instrument designed to assess their learning characters as they relate to motivation and self-regulation; however, four of those surveyed withdrew from the course, resulting in 117 usable surveys. All participants were contacted through their school email accounts. Because of the use of a census method, sampling methods were not used, thus, generalizability is limited to the participants within the study High achieving students were defined as those who received a grade of a 90% or higher (*M*=94.95, *n* = 55).

The data were collected through a 45-item survey instrument based on Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich, 1991) as well as an end of course 32-item survey generated by the online course provider requesting information on student demographics and other information pertinent to this provider, for example satisfaction of course delivery, etc. The MSLQ was opened during a 4-week window to students enrolled in an online summer course in economics at the beginning of the course. The students were to rate their self-motivation and self-regulation on Likert type response scales (1=Never,...4=Always).

Within the construct of self-motivation, questions were focused on its components, intrinsic value, self-efficacy and test anxiety. A few of the statements that were associated with internal value were "I prefer classwork that is challenging so I can learn new things", and "Understanding this subject is important to me". Some samples of statements associated with self-efficacy were "Compared with other students in this class, I think I'm a good student", and "I'm certain I can understand the ideas taught to me in this course", while statements associated

with test anxiety were negatively posited, "When I take a test I think about how poorly I am doing" and "I am so nervous during a test that I cannot remember facts I have learned".

Within the construct of self-regulation, questions focused on the control component and cognitive strategy use component. Statements for control were constructed in statements such as "I find that when I'm reading online material, I think of other things and become distracted" and "Even when study materials are dull and uninteresting, I keep working until I finish". Those statements focused on cognitive strategy use involved metacognition, such as: "When studying, I copy my notes over to help me remember material" and "When I am studying a topic, I try to make everything fit together.

Findings and Results

There were 55 out of the 117 surveyed participants (n = 55) who received a final grade of 90% or above (M = 94.96, sd = 4.21) for the Economics 301 online course. Out of the 55 high achieving students taking economics online, 37 were female and 12 were male, six students in the high achieving bracket were non-responsive to the end of course survey sent by the online service provider. The ages ranged from 15 years old (2 students) to 18 years old (one student), but fell generally within 17 years old (30 students).

This online course was offered to all districts throughout the state of Idaho. The participants came from schools districts with a total enrollment of 128 students up to over 36,000 students. Most of the high achievers in the instant study came from Boise School District with an enrollment of over 25,000 students. When asked to select the reasons (students were allowed to select more than one reason) for taking this course online, 44 students gave the reason of a scheduling conflict and 13 indicated that it was their desire to move ahead at a quicker pace or to graduate early.

Objective 1. Describe the self-motivation profile of the high achieving student in an online economic course.

High achieving students rated the internal value for this online course above 2.5 (*M* = 2.96, *sd*=.51). The range was 2.22, with the minimum score of 1.67 and maximum of 3.89. The average score in the component of self-efficacy was above 3.0 (*M* = 3.33, *sd* = .38). The range was 1.78 (2.22-4.00). The high achieving student rated test anxiety at a level below 2.0 (*M* = 1.86, *sd* = .70). The range was 2.75 (1.00-3.75).

Objective 2. Describe the self-regulation profile of the high achieving student in an online economic course.

Within the self-regulation construct, high achievers in an online economics class perceived the control component near 3.0 (*M* = 2.97, *sd* = .33). The range was 1.33 (2.22-3.56). The self-regulation component of cognitive strategy use was near 3.0 (*M* = 2.90, *sd* = .41). The range was 1.69 (2.09-3.77).

Conclusions and Recommendations

Two components of self-motivation, self-efficacy and test anxiety seem to describe the high achieving student in the online economics course. These students demonstrate a high level of self-efficacy and a low level of test anxiety. The average high achieving student in an online economics course perceived themselves with a high level of self-efficacy (3.33) and low test anxiety (1.86) and above average internal value for the course (2.96). The student who achieves a high level of achievement in an online course has a high level of control (2.97) and cognitive strategy use (2.90), although not quite as high as self-efficacy. From these findings, it appears that the two subprocesses that may have the most positive influence on high achieving students in an economics class are self-efficacy and low test anxiety.

These findings can inform educators of online pedagogy and course development. With this information, educators can structure their online courses in such a way that students become self-efficacious within this structure through positive and immediate feedback on coursework. If immediacy is a problem, then the educator can provide a given time frame when feedback can be expected by the student. Another way to use this information is for the educator to recognize the negative impact of test anxiety on student achievement and introduce study guides, weekly quizzes or other methods of assessments. Further, the educator can strengthen internal value of the online course by making meaningful connections to future use of its concepts.

Significance of the Study

A review of literature found few empirical studies that analyzed the perspectives of high achieving students in an online course regarding their perceived self-regulation and self-motivation. This study's objectives were to describe the characteristics of high achieving students enrolled in an online economics course and to examine the relationship between the subprocesses of self-regulation, self-motivation, and academic performance.

This study adds to the body of knowledge in this relatively new area of online learning for secondary grade students. The findings suggest that the student who will achieve a successful outcome in an online learning environment should possess a high level of self-efficacy and knowledge of learning strategies. Further, it is the self-efficacious student who appears to have a lower level of test anxiety that leads to higher academic performance. Further studies need to be conducted in this area to determine patterns of characteristics in high achieving students in online environments, not limited to Economics.

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