Graduate Student Choice: Relative Autonomy and Control in Online Courses

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Abstract

This quantitative, non-experimental study used a self-report survey design to explore the regulatory styles, as identified by the Self-Determination Theory (SDT), of graduate students enrolled in prescribed and elective courses. A sample consisting of 53 participants, enrolled in a master's degree program in education at a state university in the northeastern region of the United States of America, completed an online survey including demographic questions and an adapted version of the Learning Self-Regulatory Questionnaire (SRQ-L). The findings revealed a significant difference in relative autonomy between students enrolled in prescribed and elective courses. Using SDT as a theoretical framework, this study adds to the body of knowledge on regulatory styles of graduate students studying in online learning environments. While the sample size was small, the results of this study emphasized the need of educational leaders to be attuned to meeting the students' needs of autonomy and that the measure of motivation for graduate students may be impacted by their self-selection of courses and overall program design.

Keywords: Graduate student autonomy, Self-Determination Theory, Student motivation, Online learning environment, prescribed and elective curriculum.

Introduction

The concept of online classes and hybrid class models is on the rise as evidenced by the increased number of colleges and universities offering not only classes, but complete degree programs using an online interface (Allen, Seaman, Poulin, & Straut, 2016). In 2017, it was reported that 6.6 million students were enrolled in courses online, 1.4 million of whom were enrolled in online post-baccalaureate courses (Bastrikin, 2020). Of those graduate students enrolled in online courses, 77% were pursuing a degree (Bastrikin, 2020). Furthermore, the COVID-19 global pandemic forced many traditional learning environments to transition to online learning. As such, there remains a need for greater understanding of how to best support students in the online learning environment.

As the number of online graduate degree programs increases, so too does the need to evaluate the curriculum of such programs, specifically the program design. Research exists within the realm of online learning and internally motivated behaviors (Artino, 2008; Martens et al., 2007; Sun & Rueda, 2012), and motivational factors of college students (Carrell & Menzel, 2001; Moller et al., 2005). Additional research has been done comparing individuals in online courses to those in traditional classroom environments (Al-Qahtani & Higgins, 2013; Aly, 2016) in an effort to

understand what motivates students (Butz et al., 2014). Relatively little research exists exploring the self-regulatory behaviors of online, graduate students enrolled in elective and prescribed courses.

The value of prescribed versus elective curriculum has been debated for years. It has been suggested that a balance between prescribed and elective courses is needed to best serve the student (Ray, 1962). Honoring academic freedom, many notable universities offer degree programs, primarily at the graduate level, in which students have the ability to self-select their curriculum from a listing of identified courses pertinent to their area of study, rather than taking courses in a prescribed sequence (Harvard Business School, n.d.; Tuck School of Business at Dartmouth, 2017), whereas others offer a prescribed sequence of courses necessary for degree completion.

With online learning environments becoming mainstream in post-secondary educational institutions, there is a growing need for research of online student populations. Research has shown that high levels of self-regulatory behaviors are positively correlated with undergraduate student motivation (Sun & Rueda, 2012; Wolters & Benzon, 2013) and that student beliefs about motivation (Artino, La Rochelle, & Durning, 2010), higher levels of student motivation (Bolkan, Goodboy, & Kelsey, 2016; Martin, Galentino, & Townsend, 2014), and self-regulated learning strategies (Stegers-Jager, Cohen-Schotanus, & Themmen, 2012; Wolters & Hussain, 2015) contribute to academic success.

Self-Determination Theory (SDT)

Self-determination theory views the acquisition and sustainment of intrinsic and extrinsic motivation, through the human needs for competence, autonomy, and relatedness being fostered or thwarted through differing social environments (Deci & Ryan, 1985). The main idea of the SDT is the intention or purpose of an individual to engage in a particular behavior (Deci & Ryan, 1994). A sub-theory of SDT, Organismic Integration Theory (OIT) was used as the theoretical framework for this study.

Organismic Integration Theory (OIT)

The Organismic Integration Theory (OIT), a mini-theory of SDT, offers distinction between four regulatory styles that exist on a continuum of controlled to autonomous self-regulation; external regulation, introjected regulation, identified regulation, and integrated regulation (Ryan & Deci, 2018; Ryan & Deci, 2000a; Ryan & Deci, 2000b). Figure 1 is a visual representation of the extrinsic motivation continuum.

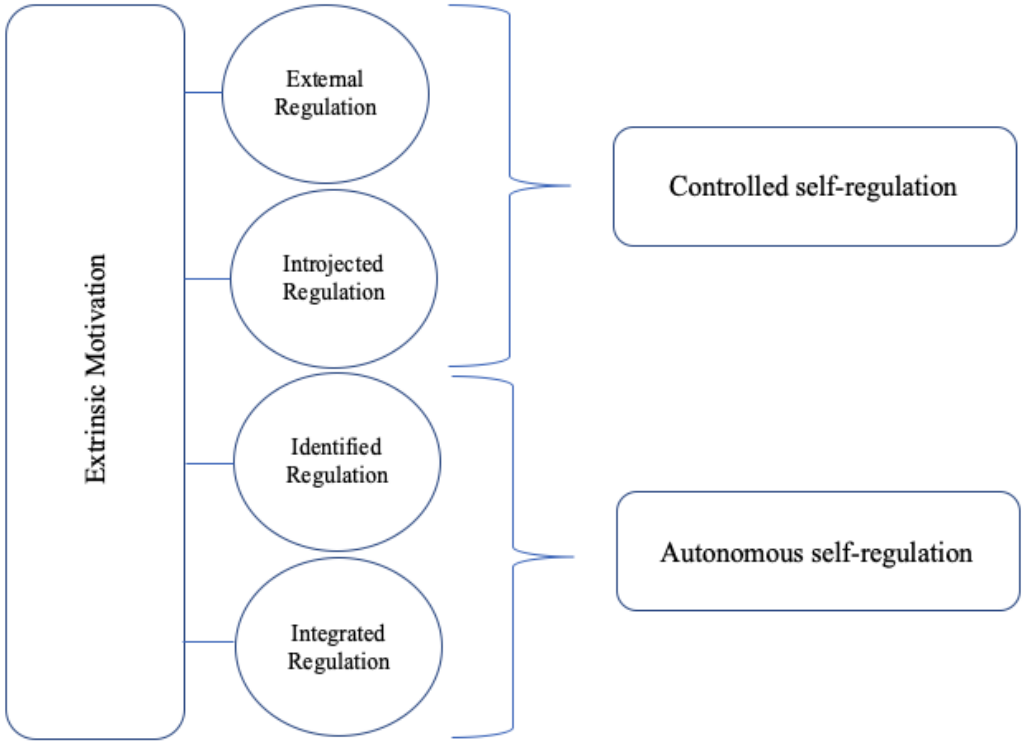

Figure 1. Visual representation of extrinsic motivation continuum.

External and introjected regulation. Within the controlled self-regulatory category exists external and introjected regulation. Identified as "the least autonomous form of extrinsic motivation" (Ryan & Deci, 2000a, p. 61), external regulation exists when an individual engages in a behavior only to gain an external reward, or satisfy a demand made by someone else (Ryan & Deci, 2000a). The next type of self-regulation along the continuum is introjected regulation whereby and individual performs a task in an effort to either avoid guilt or retain pride (Ryan & Deci, 2000a). Vansteenkiste et al. (2010), in a study testing controlled regulations on performance-approach goals, found that students "perceive outperforming others as a pressured endeavor so it is likely to disrupt aspects of their learning" (p. 348) which is an example of the introjected regulation component of the SDT.

Identified and integrated regulation. The other side of the continuum encompasses the two regulatory styles that comprise the autonomous self-regulatory category; identified and integrated regulation. Identified regulation occurs when "the person has identified with the personal importance of a behavior and has thus accepted its regulation as his or her own" (Ryan & Deci, 2000a, p. 62). Integrated regulation is the "most autonomous form of extrinsic motivation" and "occurs when identified regulations have been fully assimilated to the self" (Ryan & Deci, 2000a, p. 62). Although close in nature, an individual who has developed a sense of integrated regulation does not change the behavior to being intrinsically motivated.

Online Learning Defined

Online learning has evolved into a mainstream model of education. An understanding of the evolution and of online learning and its definition is necessary prior to introducing any research associated with the same. Online learning is distinctive from distance education and blended, or hybrid learning. Distance learning involved a learning environment in which the student and teacher are physically separated and has been delivered by means of postal delivery, radio, and television (Kentnor, 2015). As technology evolved, so too did distance education. In the late 1980s, online learning began to take shape (Kentnor, 2015) with new technology driving innovation. Online learning has been sometimes defined as the "contradistinction to F2F learning" (Nortvig, Petersen, & Balle, 2018, p. 47), and is most notably differentiated by its lack of a physical classroom and complete online delivery through a learning management system (LMS) (Nortvig, et. al, 2018). For the purpose of this study, the definition of online learning is congruent with the definition provided by Nortvig, et. al (2018) as being a learning environment completely delivered online through an LMS.

Student Choice

Learning has become more personal and students are demanding more online and flexible options, modified to meet their needs (Bonk, 2016). It is important for higher education institutions to consider the demands of the current and next generation of self-directed students. In a quantitative study, online learners were surveyed from open or informal learning websites to examine the motivational factors of online learners (Song & Bonk, 2016). While the response rate was relatively low (n = 85), it was determined that freedom and choice, control, and interested and engagement were the most impactful means of motivating students with the most significant being control. Online learning through elective courses allows for students to not only control the time and location in which they access their courses, but also the content in which they engage. "Intrinsic motivation could lead learners to engage them in their own learning activities in a more self-directed way" (Song & Bonk, 2016, p. 10).

As adult-learners, the graduate student population is subject to a number of motivational factors related to engagement in online courses (Sogunro, 2015; Yoo, 2013). Adult learners are inherently more "autonomous and self-directed" (Shapiro, 2013, p. 43). With this in mind, student choice should be a consideration when working with adult-learners. Student choice has been associated with the betterment of accommodating learning needs (Montgomery, 2009) and higher literacy achievement (McClung, Barry, Neebe, Mere-Cook, Wang, & Gonzalez-Balsam, 2019) in the classroom.

Extrinsic factors may overshadow intrinsically motivated behaviors causing "overjustification" thereby diminishing overall motivation and engagement among students, however (Lepper, Green, & Nisbett, 1973). Deci & Ryan (1994) argued that this was due to the undermining of "people's experience of self-determination" (p. 5). Voluntary versus mandatory activities may present more influence on intrinsic motivation, than that of self-determination (Ferrer-Caja and Weiss, 2002). Arguing that students have taken more responsibility for their own learning due to an ability to personalize and choose their own learning, it has been recommended that future research should evaluate student choice in online learning environments (Irvine, Code, & Richards, 2013).

"Choice allows peopled to do better at, enjoy, and persist at activities because they feel that they have autonomy, self-control, and the ability to determine their own fate" (McClung, Barry, Neebe, Mere-Cook, Wang, & Gonzalez-Balsam, 2019, p. 147).

The findings of one study investigating the intrinsic motivational factors of adolescent students enrolled in elective, physical education classes suggested that students enrolled in elective courses exhibited higher levels of self-determination and that the voluntary aspect of the course may have contributed to the intrinsic motivation (Ferrer-Caja & Weiss, 2002). Increased levels of motivation may increase leaner engagement, self-determination, and achievement (Ferrer-Caja & Weiss, 2002; Hartnett et al., 2011; Lin & Jou, 2013; Song & Bonk, 2016).

Using SDT as a framework, another researcher investigated motivational levels, need satisfaction, and perceived course success of graduate students enrolled in a synchronous, hybrid business program. Between groups analyses among online and on-campus groups were performed and it was found that intrinsic motivation was a stronger predictor of perceived success in online courses over amotivation with the converse being true for the perceived success of on-campus students (Butz et al., 2014). However, another study found that while both intrinsic and extrinsic motivation were significantly correlated with student engagement, intrinsic motivation was found to be less of a predictor of online student engagement (Xiong et al., 2015).

Self-Regulation in Online Learning

Research has shown that high levels of self-regulatory behaviors are positively correlated with student motivation (Sun & Rueda, 2012; Wolters & Benzon, 2013) and that student beliefs about motivation contribute to academic success (Artino et al., 2010). Educational leaders must consider the differences between curriculum designs for traditional versus online environments. Instructional media has been characterized by both the culture that surrounds the media and the pedagogical methods which become available when employed (Swan, 2015), and it has been argued that the media itself is more important that the content (Safar & AlKhezzi, 2013). Educators may struggle with trying to understand what motivates students and as advances in technology continue to happen in education, the more complex the matter of motivation may become. Technological advances, along with research in optimal pedagogical techniques, have sparked the learning community movement as well as online learning environments. Learning communities (Moller et al., 2005), lecture delivery and teacher availability (Carrell & Menzel, 2001), and self-efficacy and self-regulation (Reeve & Lee, 2014; Sun & Rueda, 2012; Wolters & Benzon, 2013) were all found to be factors determining online student motivation. Extrinsic, or external, motivation was also found to have a lesser impact on motivation than that of intrinsic motivation (Lepper et al., 1973; Rassuli, 2012).

Self-regulation is the idea that students will stay on task even without direct interaction with their instructors (Sun & Rueda, 2012). Studies have shown that students who were more highly motivated showing exhibited higher amounts of self-regulation strategies (Sun & Rueda, 2012; Wolters & Benzon, 2013). Furthermore, students who had higher levels of interest in the material (Sun & Rueda, 2012) and those who valued the material and wanted to learn (Wolters & Benzon, 2013), tended to have higher levels of self-regulation and tended to use and maintain self-regulatory strategies.

Methodology

This quantitative, non-experimental study explored relationships between variables using a self-report survey design. The dependent variable is relative autonomy scores of graduate students and the independent variable is the students' enrollment in a required, or prescribed course, or an elective/self-selected course. Demographic data was also collected, including gender, educational level, and age.

The purpose of this study was to identify the relative autonomy, as identified in a mini-theory of Self Determination Theory, The Organismic Integration Theory (OIT), of graduate students enrolled in prescribed and elective courses, in a fully online masters of education program. Elective courses were defined as those classes self-selected by the student to fulfill their intended degree program and prescribed courses are defined as those classes identified by the college or university as required for a degree program.

Research Question and Hypotheses

The following research question guided this study: What are the differences, if any, between self-regulatory styles, as measured by Relative Autonomy Index, between students in online prescribed courses and students in online elective courses?

It was hypothesized that:

$H1_{o:}$ No difference in relative autonomy exists between students enrolled in online, elective courses and online, prescribed courses.
$H1_{A:}$ A significant difference in relative autonomy exists between students enrolled in online, elective courses and online, prescribed courses.
$H2_{0:}$ Students enrolled in elective courses will not score higher in autonomy subscales than those students enrolled in prescribed courses.
$H2_{A:}$ Students enrolled in elective courses will score higher in autonomy subscales than those students enrolled in prescribed courses.
$H3_{0:}$ Students enrolled in prescribed courses will not score higher in controlled subscales than those students enrolled in elective courses.
$H3_{A:}$ Students enrolled in prescribed courses will score higher in controlled subscales than those students enrolled in elective courses.

Instrumentation and Data Collection Procedures

A demographic questionnaire and an adapted form of the Learning Self-Regulation Questionnaire (SRQ-L) was used. The original Self-Regulation Questionnaire (Ryan & Connell, 1989) was subsequently adapted to accommodate medical students (William & Deci, 1996) and college students learning organic chemistry (Black & Deci, 2000). The adapted questions of the SRQ-L, for this study, are attached hereto as Appendix A. Written permission was received from both Drs. Ryan and Deci to utilize the SRQ-L and adapt the instrument to meet the needs of graduate education students in the study.

Demographic questions included items on age, gender, and number of online courses taken. Participants were also asked to report on which course they are answering the questions, and if the course was an elective or prescribed course within their degree program. During data cleaning, the researcher assigned the course as either prescribed or elective, based upon student report. The adapted SRQ-L consisted of 12 items using a 7-point, Likert-type scale designed to evaluate two subscales: autonomous regulation and controlled regulation.

The instrument allowed for two types of scoring, including separate scores for autonomous behavior and controlled behavior and an aggregate Relative Autonomy Index (RAI) score. The RAI was calculated by subtracting the controlled regulation score from the autonomous regulation score. The adapted SRQ-L consisted of 12 items using a 7-point, Likert-type scale designed to evaluate two subscales: autonomous regulation and controlled regulation. The instrument allowed for two types of scoring, including separate scores for autonomous behavior and controlled behavior and an aggregate Relative Autonomy Index (RAI) score.
In accordance with the scoring instructions from the authors of the instrument, the Autonomous Regulation score was obtained by averaging the participant scores for items 1, 4, 8, 9, and 10. The Controlled Regulation score was calculated by averaging participant scores for items 2, 3, 5, 6, 7, 11, and 12. Once the subscales scores were calculated, the RAI was produced by subtracting the controlled regulation score from the autonomous regulation score.

Professors at the research site received an email to their university email address which included a link to the online questionnaire and electronic informed consent. Professors were asked to then disseminate the survey link and instructions to students within the specified course. All data was collected anonymously; no names or identifying information were captured. Data from the questionnaire was collected in electronic format through use of surveymonkey.com and exported into MS Excel format. The Excel spreadsheet was saved on the hard drive of a password protected laptop.

Ethical Considerations and Informed Consent

Ethical concerns specific to the proposed study include informed consent, participant anonymity, data security, and researcher bias. All participants were required to provide electronic informed consent acknowledgement prior to beginning the questionnaire. Participants that did not provide consent were not permitted to answer any survey questions and subsequently redirected to a landing page. Participants were asked to report their age. Those reporting an age under 18 were not permitted to complete the survey.

The researcher completed an approved, online training program and obtained a certificate of completion for said training through the National Institutes of Health (NIH). The researcher's University Institutional Review Board (IRB) and University at which the research was conducted granted the researcher approval to conduct the research for this study.

Context and Participants

The participants in this study were graduate level, adult learners, studying in a fully online masters of education program at a state university in the Northeastern region of the United States.

Participants were selected based on their enrollment in a fully online program that offered both required courses and self-selected electives as part of degree completion. The courses were delivered via the same online learning platform. For degree completion, students must complete 18 credits of required courses and 12 credits of elective or self-selected course work. It should be noted that a limitation of the study is the inability to generalize the findings to undergraduate students, or students studying in other disciplines besides education due to this small, homogenous sample. Any conclusions drawn would only pertain to students studying in similar large, state universities.

Email invitations were sent to professors of courses identified within the selected programs offered across two semesters. A total of 48 sections of courses were offered as part of the degree programs during the aforementioned time frame with a combined total of 780 enrolled students. Several courses and sections had the same instructor. Of the initial and follow-up email invitations sent, twelve instructors responded in agreement to distribute the survey link to their class. Based upon the responses from instructors, it was estimated that approximately 195 students were presented with the survey link. A total of 58 responses were collected. Five surveys were removed from the data set prior to analysis, as they were incomplete.

Results

Sample

The sample consisted of 53 participants, slightly over half of whom identified as female (n = 30), with the rest identifying as male (n = 23). Participants were asked to report the number of online courses they had taken. Table 4.1 reports the frequencies and percentages associated with the number of online courses taken, with about half of the participants (50.9%) reporting on one of their first three online courses taken.

Table 4.1
Frequencies and Percentages of Number of Courses Taken

Courses Taken	Frequency	Percentage
First course taken	12	22.6
1 – 3	15	28.3
4 – 5	7	13.2
6 – 8	7	13.2
9 – 11	2	3.8
12 or more	10	18.9
Total	53	100

The Statistical Package for Social Sciences (SPSS) 25 was used as the software to analyze the data collected for this study. Once the data was cleaned and coded, descriptive statistics were computed for all demographic data gathered. A p value of .05 was required to determine significance. Paired and independent t-tests were conducted to evaluate the relationship between subscale scores and course type (prescribed or elective).

The participants included students enrolled in self-selected, elective and prescribed, required courses. Of those courses, approximately 25% were classified as electives (n = 14) and the remaining 75% classified as prescribed (n = 39). Table 4.2 presents the means and standard deviations of the controlled and autonomous subscales, and the Relative Autonomy Index by course type.

It was noted that the standard deviations among controlled regulation score and Relative Autonomy Index were higher in elective courses than prescribed courses. The wider dispersion of data from the mean coupled with the uneven split between students enrolled in prescribed and elective courses may indicate that outliers may have skewed the mean. An assessment of the medians for each subscale and RAI (see table 4.3) served as another method for comparison.

Table 4.2
Means and Standard Deviations for Subscales and Relative Autonomy Index

	Prescribed Course		Elective Course	
	M	SD	M	SD
Controlled Regulation Score	4.42	1.10	4.41	1.62
Autonomous Regulation Score	5.58	.99	6.03	.67
Relative Autonomy Index	1.16	1.12	1.61	1.43

Table 4.3
Median for Subscales and Relative Autonomy Index

	Mdn	
	Prescribed	Elective
Controlled Regulation Score	4.43	4.21
Autonomous Regulation Score	5.80	6.10
Relative Autonomy Index	1.14	1.83

To test H1, an independent-samples t test was conducted on the Relative Autonomy Index variable. Levene's Test for Equality of Variance was not significant at .21 for the Relative Autonomy Index, therefore equal variances were assumed. The t-test was not significant, $t(51) = 1.19$, $p = .24$, indicating that no significant difference in motivational regulatory styles exists between students enrolled in elective and prescribed courses. Based upon these results $H1_0$ cannot be rejected.

To test the second hypothesis, that students enrolled in elective courses will report higher levels of autonomous behavior than those enrolled in prescribed courses, an independent-samples t test was conducted. Levene's Test for Equality of Variance was not significant at .20 for the controlled behavior subscale, therefore equal variances were assumed. As shown in Table 4.3, students enrolled in elective courses did report higher levels of autonomous behavior (M = 6.03, SD = .67) than those students enrolled in prescribed courses (M = 5.58, SD = .99). Based upon these

findings, the researcher rejected $H2_0$ and confirmed that students enrolled in elective courses report higher levels of autonomous behavior. The *t* test was not significant, $t(51) = -1.55$, $p = .13$, indicating that there was not a significant difference between groups.

An independent-samples *t* test was conducted to evaluate the hypothesis that students enrolled in prescribed courses will report higher levels of controlled behaviors than those enrolled in elective courses. Levene's Test for Equality of Variance was significant at .05, therefore equal variances were not assumed. Students enrolled in prescribed courses (M = 4.42, SD = 1.10) did score slightly higher on the controlled behavior subscale than those enrolled in elective courses (M = 4.41, SD = 1.63). Based on this information, the researcher rejected $H3_0$ and confirmed that students enrolled in prescribed courses report higher levels of controlled behavior as evidenced by the higher mean. The *t* test was not significant, $t(17.50) = .01$, $p = 1.00$, indicating that there was not a significant difference between groups.

Table 4.5
Means and Standard Deviations for Subscale Scores and RAI with Std. Error Mean

Scale	Course Type	N	M	SD	Std. Error Mean
Controlled Behavior	Prescribed	39	4.42	1.10	.18
	Elective	14	4.41	1.63	.43
Autonomous Behavior	Prescribed	39	5.58	.99	.16
	Elective	14	6.03	.67	.18
Relative Autonomy Index	Prescribed	39	1.16	1.12	.18
	Elective	14	1.61	1.43	.38

One-way Analysis of Variance (ANOVA) tests were conducted to determine effect size for each subscale and RAI. The η^2 of .00 for the controlled subscale, .05 for the autonomous subscale, and .03 for the RAI, indicates a small relationship between the scores for each scale and course type. The ANOVA also confirmed that the *F* tests for each variable did not reveal significance.

Discussion

Building upon seminal works in both empirical and psychodynamic drive theories, along with the works of forerunners in the field of personal causation and self-determination, Deci and Ryan (1985) constructed a framework to examine the acquisition and sustainment of intrinsic and extrinsic motivation, through the human needs for competence, autonomy, and relatedness.

Self-determination theory views the acquisition and sustainment of intrinsic and extrinsic motivation, through the human needs for competence, autonomy, and relatedness being fostered or thwarted through differing social environments. The main idea of the SDT is the intention or purpose of an individual to engage in a particular behavior (Deci & Ryan, 1994). Using SDT as a theoretical framework, the current study added to the body of knowledge on motivational regulatory styles of graduate student studying in online learning environments. Consistent with SDT, this study showed that differing environments do have an impact on autonomy. Students

enrolled in elective courses reported significantly higher levels of autonomous behavior than those students enrolled in prescribed courses.

The vast majority of research on student motivation encompasses undergraduate participants (Hartnett, St. George, & Dron, 2011; Moller, Huett, et al., 2005; Sun & Rueda, 2012; Wolters & Benzon, 2013), while those that explore the graduate student population do so in comparison to undergraduate students (Roval, Ponton, Wighting, & Baker, 2007). Research has shown that high levels of self-regulatory behaviors are positively correlated with undergraduate student motivation (Sun & Rueda, 2012; Wolters & Benzon, 2013) and that student beliefs about motivation (Artino, La Rochelle, & Durning, 2010), higher levels of student motivation (Bolkan, Goodboy, & Kelsey, 2016; Martin, Galentino, & Townsend, 2014), and self-regulated learning strategies (Stegers-Jager, Cohen-Schotanus, & Themmen, 2012; Wolters & Hussain, 2015) contribute to academic success.

Furthermore, the literature identified that voluntary versus mandatory activities may present more influence on intrinsic motivation, than that of self-determination (Ferrer-Caja and Weiss, 2002). Arguing that students have taken more responsibility for their own learning due to the ability to personalize and choose their own learning, it was posited that future research should evaluate student choice in online learning environments (Irvine, Code, & Richards, 2013). Consistent with this, the current study revealed that students who self-selected courses reported higher levels of autonomous behavior whereas students in prescribed courses reported slightly higher levels of controlled behavior.

The current study also revealed that students enrolled in elective courses scored higher on both the autonomous behavior subscale and Relative Autonomy Index than their colleagues enrolled in prescribed courses. These higher scores indicated that students enrolled in elective courses are more internally driven to complete the course materials as opposed to completing the course for external reward or mere compliance. Since it is known that higher levels of student motivation (Bolkan, Goodboy, & Kelsey, 2016; Martin, Galentino, & Townsend, 2014), and self-regulated learning strategies (Stegers-Jager, Cohen-Schotanus, & Themmen, 2012; Wolters & Hussain, 2015) contribute to academic success, the self-selection of coursework may be a factor of academic achievement.

Findings from this study may help educational leaders better understand a component of student motivation and may contribute to curriculum development and revision with regard to prescribed and elective curricula. Furthermore, this study added to the scant body of research on graduate student motivation. As the number of students in online learning environments continue to grow (Allen, et al, 2016), it is imperative for educational leaders to have a thorough understanding of the many factors contributing to student success, especially motivation and engagement. Specifically, the motivation and engagement of graduate students enrolled in online degree programs.

Limitations of the Study

Limitations include the extraneous variables of previous online learning experience, and the factors contributing to the students' choice to attend a fully online program, which may impact their

academic motivation. The converse is another limitation, such that students that are more motivated in a certain way may be more attracted to online degree programs. Also, not included within the scope of this study was the motivations of students to enroll in graduate school.

This study did not measure the social support available to participants nor did it explore the reasons participants are pursuing a post-secondary degree, both of which may have an impact on academic motivation and self-regulation. Furthermore, due to the non-experimental method, this study provided exploratory data and did not provide sufficient evidence to determine causality. To allow for anonymous data collection, the researcher provided the link and invitation survey to course professors, thus creating a limitation of the number of students to which the invitation was distributed and, consequently, the number of survey responses received.

This study included a relatively small sample of graduate education students studying in an online learning environment at a state university in the Northeastern region of the United States. As such, a limitation of the study is the inability to generalize the findings to undergraduate students, or students studying in other disciplines besides education due to the small, homogenous sample. Any conclusions drawn would only pertain to students studying in similar large, state universities. It should also be noted that a relatively small number (n = 17) of participants were enrolled in elective course. Future studies on the topic that include a greater number of participants and a more diverse sample would be beneficial.

Implications for Practice

Many graduate students are adult-learners and may not have the same technology savvy mindset of undergraduate students. The student population of adult learners is subject to a number of motivational factors which are related to engagement in online courses (Sogunro, 2015; Yoo, 2013). Shapiro (2013) stated that adult learners are inherently more "autonomous and self-directed" (p. 43). With this in mind, the results of this research may indicate a need for self-selection of courses at the graduate level to not only accommodate adult learners, but also to increase academic success.

A significant difference in motivational regulatory styles exists between students enrolled in elective and prescribed courses. While the levels of controlled behavior were not found to be significantly different among student enrolled in prescribed courses, it was noted that students in elective courses exhibited significantly higher levels of autonomous behavior. This finding has several implications to student, educators, course developers, and administrators.

Implications for students. Previous research suggested that student beliefs about motivation contribute to academic success (Artino, La Rochelle, & Durning, 2010), therefore students must be aware of their motivation for selecting an online degree program. Those students who self-select courses have been shown to exhibit higher levels of autonomous behavior, or tend to be driven by more internal forms of extrinsic motivation. If a student is more extrinsically motivated to complete a degree program, then they may choose a program in which they the courses required for degree completion are prescribed. Whereas students internally motivated to complete degree programs may be more fulfilled in programs in which they are able to self-select courses.

Implications for educators and course developers. Educators and course developers in higher education institutions must be aware of the differences in motivation for students enrolled in prescribed and elective courses. Since student motivation is a factor in academic achievement, educators should be aware of the various motivational levels of their students. Those teaching non-elective courses will need to ensure that students are provided with explicit instruction to capitalized on the controlled regulatory behavior exhibited by these students, as shown in the current study. Educators and course developers should work together to determine ways to increase more autonomous behavior in online, prescribed courses. This may include showing the student relevance of the course and tying the material into the students' reason for selecting a graduate program.

Course developers are challenged with creating a motivational course sequence for a broad range of students, and the expectations of these developers often do not match the expectations and experiences of the students taking the courses (Martens, et al., 2007). Previous research has examined the effect of situational interest, computer self-efficacy, and self-regulation on behavioral, emotional, and cognitive engagement on engagement and motivation in a distance education setting (Sun & Rueda, 2012). It has been shown that while computer self-efficacy and self-efficacy in general were not correlated to self-regulation strategies, students who were more highly motivated showed higher levels of self-regulation strategies (Sun & Rueda, 2012; Wolters & Benzon, 2013). With this in mind, courses must be developed in a way that students are more motivated and engaged in the material while learning to increase the level of student self-regulation and related strategies. Since course developers may not know the students who will be taking the courses they develop, it is important for them to have an understanding on the power of engagement and motivation on academic success.

Implications for administration. When determining degree structure, administration must consider motivation as a factor in academic success. This study has shown that students enrolled in elective courses exhibit significantly higher levels of autonomous regulatory behavior. More highly motivated students are more likely to have higher levels of academic achievement. Therefore, administration should consider adding programs with more self-choice options, or revising existing programs to incorporate more student choice. Specifically, higher education institutions offering online graduate degree options should be aware of the higher levels of autonomy exhibited by adult learners (Shapiro, 2013) and those students enrolled in elective, or self-selected courses.

About the Author

Dr. Wasmanski is an assistant professor in the school of education's doctoral department. She earned her Ed.D. in Educational Leadership with concentration in Curriculum and Instruction from Wilkes University. She holds an MBA from Wilkes University and a bachelor of science degree in Psychology from Misericordia University. With over 15 years of professional training and teaching experience, Dr. Wasmanski has taught numerous courses within the fields of psychology, business & leadership, and education. Her primary research interests include motivation, engagement, and mindfulness as they relate to employee and student success.

References

Al-Qahtani, A., & Higgins, S.E. (2013). Effects of traditional, blended and e-learning on students' achievement in higher education. *Journal of Computer Assisted Learning, 29*(3), 220-234. http://dx.doi.org/10.1111/j.1365-2729.2012.00490.x.

Aly, I. (2016). Comparison of students' performance in a managerial accounting course taught in blended learning, traditional classroom, and online setting. *Quarterly Review of Business Disciplines, 2*(4), 325-336.

Allen, I. E., Seaman, J., Poulin, R., & Straut, T. T. (2016). *Online report card: Tracking online education in the United States.* Retrieved from Online Learning Consortium website: https://onlinelearningconsortium.org/read/online-report-card-tracking-online-education-united-states-2015/.

Artino, A. R. (2008), Motivational beliefs and perceptions of instructional quality: predicting satisfaction with online training. *Journal of Computer Assisted Learning, 24*(3), 260-270.

Artino, A. R., La Rochelle, J. S., & Durning, S. J. (2010). Second-year medical students' motivational beliefs, emotions, and achievement. *Medical Education, 44*(12), 1203-1212.

Bastrikin, A. (2020). Online Education Statistics. Retrieved from https://educationdata.org/online-education-statistics/.

Black, A. E., & Deci, E. L. (2000). The effects of instructors' autonomy support and students' autonomous motivation on learning organic chemistry: A self-determination theory perspective. *Science Education, 84,* 740-756.

Bolken, S., Goodboy, A. K., & Kelsey, D. M. (2016). Instructor clarity and student motivation: Academic performance as a product of students' ability and motivation to process instructional material. *Communication Education, 65*(2), 129-148.

Bonk, C. J. (2016). Keynote: What is the state of e-learning? Reflections on 30 ways learning is changing. *Journal of Open, Flexible and Distance Learning, 20*(2), 6-20.

Butz, N. T., Stupnisky, R. H., Peterson, E. S., & Majerus, M. M. (2014). Motivation in synchronous hybrid graduate business programs: A self-determination approach to contrasting online and on-campus students. *Journal of Online Learning and Teaching, 10*(2), 211-227.

Carrell, L. J., & Menzel, K. E. (2001). Variations in learning, motivation, and perceived immediacy between live and distance education classrooms. *Communication Education, 50*(3), 230-240.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.

Deci, E. L., & Ryan, R. M. (1994). Promoting self-determined education. *Scandinavian Journal of Educational Research, 38*(1), 3-14.

Ferrer-Caja, E., & Weiss, M. R. (2002). Cross-validation of a model of intrinsic motivation with students enrolled in high school elective courses. *The Journal of Experimental Education, 71*(1), 41-65.

Hartnett, M., St. George, A., & Dron, J. (2011). Examining motivation in online distance learning environments: Complex, multifaceted, and situation-dependent. *The International Review of Research in Open and Distributed Learning, 12*(6),

Harvard Business School. (n.d.) *Elective curriculum.* Retrieved from http://www.hbs.edu/mba/academic-experience/curriculum/Pages/elective-curriculum.aspx.

Irvine, V., Code, J., & Richards, L. (2013). Realigning higher education for the 21st-century learning through multi-access learning. *Journal of Online Learning and Teaching, 9*(2), 172.

Kentnor, H. (2015). Distance education and the evolution of online learning in the United States. Curriculum and Teaching Dialogue, 17(1-2), 21-34.

Lepper, M. R., Greene, D., & Nisbett, R. E. (1973). Undermining children's intrinsic interest with extrinsic reward: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology, 28*(1), 129-137.

Lin, Y. T., & Jou, M. (2013). Integrating popular web applications in classroom learning environments and its effects on teaching, student learning motivation and performance. *The Turkish Journal of Educational Technology, 12*(2), 157-165.

Nortvig, A.M., Petersen, A. K., and Balle, S. H., 2018. A literature review of the factors influencing e-learning and blended learning in relation to learning outcome, student satisfaction, and engagement. The Electronic Journal of e-learning, 16(1), 46-55.

Martens, R., Bastiaens, T., & Kirschner, P. A. (2007). New learning design in distance education: The impact on student perception and motivation. *Distance Education, 28*(1), 81-93.

Martin, K., Galentino, R., & Townsend, L. (2014). Community college student success: The role of motivation and self-empowerment. *Community College Review, 42*(3), 221-241.

McClung, N. A., Barry, E., Neebe, D., Mere-Cook, Y., Wang, Q., and Gonzalez-Balsam, M. (2019). Choice matters: Equity and literacy achievement. Berkley Review of Education, 8(2), 147-178.

Moller, L., Huett, J., Holder, D., Young, J., Harvey, D., & Godshalk, V. (2005). Examining the

impact of learning communities on motivation. *The Quarterly Review of Distance Education, 6*(2), 137-143.

Montgomery, M. (2009). Student self-selection of clinical assignments. Nurse Educator, 34(2), 47-48.

Rassuli, A. (2012). Engagement in classroom learning: Creating temporal participation incentives for extrinsically motivated students through bonus credits. *Journal of Education for Business, 87,* 86-93.

Ray, J. C. (1962). Floor or ceiling? *Improving College and University Teaching, 10*(3), 134.

Reeve, J., & Lee, W. (2014). Students' classroom engagement produces longitudinal changes in classroom motivation. *Journal of Educational Psychology, 106*(2), 527-540.

Roval, A. P., Ponton, M. K., Wighting, M. J., & Baker, J. D. (2007). A comparative analysis of student motivation in traditional classroom and e-learning courses. *International Journal on E-Learning, 6*(3), 413-432.

Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology, 57,* 749– 761.

Ryan, R. M., & Deci, E. L. (2000a). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25,* 54-67.

Ryan, R. M., & Deci, E. L. (2000b). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68-78.

Ryan, R. M., & Deci, E. L. (2018). *Self-determination theory: Basic psychological needs in motivation, development, and wellness.* New York, NY: The Guilford Press.

Safar, A. H., & AlKhezzi, F. A. (2013). Beyond computer literacy: Technology integration and curriculum transformation. *College Student Journal, 47*(4), 614-626.

Shapiro, J. (2013). Don't Perspire. Inspire. Here are some tips on motivating students, residents, and fellows. *Podiatry Management, 32*(8), 43-48.

Stegers-Jager, K. M., Cohen-Schotanus, J., & Themmen, A. P. N. (2012). Motivation, learning strategies, participation and medical school performance. *Medical Education, 46,* 678-688.

Sogunro, O. A. (2015). Motivating factors for adult learners in higher education. *International Journal of Higher Education, 4*(1), 22-37.

Song, D., & Bonk, C. J. (2016). Motivational factors in self-directed informal learning from online learning resources. *Cogent Education, 3*(1), 1205838.

Sun, J. C. Y., & Rueda, R. (2012). Situational interest, computer self-efficacy and self-regulation: Their impact on student engagement in distance education. *British Journal of Educational Technology, 43*(2), 191-204.

Swan, K. (2015). Technology transience and distance education in the second machine age. *The Quarterly Review of Distance Education, 16*(2), 139-145.

Tuck School of Business at Dartmouth. (2017). *Elective curriculum.* Retrieved from http://www.tuck.dartmouth.edu/mba/academic-experience/elective-curriculum.

Vansteenkiste, M., Smeets, S., Soenens, B., Lens, W., Matos, L., & Deci, E. L. (2010). Autonomous and controlled regulation of performance-approach goals: Their relations to perfectionism and educational outcomes. *Motivation and Emotion, 34*, 333-353.

Williams, G. C., & Deci, E. L. (1996). Internalization of biopsychosocial values by medical students: A test of self-determination theory. *Journal of Personality and Social Psychology, 70*, 767– 779.

Wolters, C. A., & Benzon, M. B. (2013). Assessing and predicting college students' use of strategies for the self-regulation of motivation. *The Journal of Experimental Education, 81*(2), 199-221.

Wolters, C. A., & Hussain, M. (2015). Investigating grit and its relations with college students' self-regulated learning and academic achievement. *Metacognition Learning, 10*, 293-311.

Xiong, Y., Li, H., Kornhaber, M. L., Suen, H. K., Pursel, B. K., & Goins, D. D. (2015). Examining the relations among student motivation, engagement, and retention in a MOOC: A structural equation modeling approach. *Global Education Review, 2*(3), 23-33.

Yoo, S. J. (2013). Engaging online learners in higher education: Motivational factors impacted by gender, age, and prior experiences. *The Journal of Continuing Education, 61*(3), 151-164.

Appendix A

Learning Self-Regulation Questionnaire (SRQ-L)

The following questions relate to your reasons for participating actively in your class. Different people have different reasons for their participation in such a class, and we want to know how true each of the reasons is for you. Please rate the following statements on the 7-point scale from not at all true to very true.

I participate actively in this class:

1. Because I feel like it is a good way to improve my understanding of the material.
2. Because others might think badly of me if I didn't.
3. Because I would feel proud of myself if I did well in the course.
4. Because a solid understanding of this material is important to my intellectual growth.

I am likely to follow my professor's suggestions for studying the course material:

5. Because I would get a bad grade if I didn't do what he/she suggests.
6. Because I am worried that I am not going to perform well in the course.
7. Because it's easier to follow his/her suggestions that come up with my own study strategies.
8. Because he/she seems to have insight about how best to learn the material.

The reason that I will work to expand my knowledge in this subject is:

9. Because it's interesting to learn more about this subject.
10. Because it's a challenge to really understand this subject.
11. Because a good grade in this course will look positive on my record.
12. Because I want others to see that I am intelligent.