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An Examination of Personality Traits as a Predictor of the Use of Self-Regulated Learning Strategies

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AN EXAMINATION OF PERSONALITY TRAITS AS A PREDICTOR OF THE USE OF
SELF-REGULATED LEARNING STRATEGIES

by

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ABSTRACT

AN EXAMINATION OF PERSONALITY TRAITS AS A PREDICTOR OF THE USE OF SELF-REGULATED LEARNING STRATEGIES

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Old Dominion University, 2019
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Each learner brings a unique mix of personality traits, preferences, and talents to the educational setting. These factors can influence the extent to which learners are able to effectively deploy skills and strategies to achieve their academic goals. Gaining a deeper awareness of how specific personality traits play a role in the choice and deployment of SRL strategies provides opportunities to anticipate which learners might be ineffective self-regulators. Doing so would enable instructional designers, educators, or higher education administrators to better plan and deliver effective educational experiences for a wide range of learners. The purpose of this study was to investigate the extent to which the use of SRL strategies was impacted by learner differences in Big Five personality traits.

This mixed methods study examined the potential of utilizing the Big Five Inventory classification as a predictor of self-regulated strategy use. Specifically, the study investigated the relationship between the existence of openness, conscientiousness, extraversion, agreeableness, and neuroticism traits as possible predictors of learner use of SRL strategies. From a pool of approximately 4,200 graduate students, nearly 360 surveys were completed. Survey participants were asked to respond to five demographic items, 44 Big Five Inventory items, and 24 OSLQ items. The study indicated that personality trait classification does have an impact on the overall use of SRL strategies, as well as on the deployment of specific subscales within the OSLQ. Conscientiousness was the strongest predictor of overall OSLQ score, and agreeableness was

shown as a significant predictor of each of the six OSLQ subscales. Contrary to the researcher's initial hypothesis, exhibiting high neuroticism was not shown to have a significant negative impact on overall OSLQ scores. Results also indicated slight differences in overall OSLQ score based on personality trait and number of online courses taken. Finally, comments received during follow-up interviews lent support to statistical findings related to SRL strategy use across personality trait categories.

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This dissertation is dedicated to my wonderful family. To my husband, Raymond, who is my greatest supporter. Without you I wouldn't be me. To Sarah, Bru, and Jeb, my beautiful red-headed babies who've grown into sweet, witty, intelligent adults. I could never have reached this milestone without your love, patience, and encouragement. Most of all, thanks to my Heavenly Father, who created in me not only a desire to learn and excel, but also the ability to reach my fullest potential.

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TABLE OF CONTENTS

AN EXAMINATION OF PERSONALITY TRAITS AS A PREDICTOR OF THE USE OF SELF-REGULATED LEARNING STRATEGIES	i
LIST OF TABLES	ix
CHAPTER I.....	1
INTRODUCTION AND LITERATURE REVIEW	1
Literature Review.....	10
Models of Self-Regulated Learning	10
Self-Regulated Learning Profiles	11
Framework of Self-Regulated Learning.....	14
Big Five Personality Traits.....	16
Self-Regulated Learning and Personality Traits.....	18
Self-Regulated Learning in Online Environments	22
Personality Traits, Online Learning, and Self-Regulation	25
Purpose of Study.....	25
Research Questions	27
CHAPTER II.....	29
METHOD	29
Research Design.....	29
Setting	29
Participants.....	29
Measures	31
Procedures.....	32
Data Confidentiality.....	34
Data Analysis	34
CHAPTER III	38
RESULTS.....	38
Participants.....	38
Descriptive Analysis	40
Openness, Conscientiousness, Extraversion, Agreeableness as Predictors (RQ1).....	41
Neuroticism as Predictor (RQ2).....	43

Personality Trait and Online Courses Taken as Predictors (RQ3)	43
Experience Differences Among Personality Traits (RQ4)	45
Barriers to Successfully Completing Coursework.....	49
Participation at the Start of a New Course.....	50
Suitability for Delivery Format.....	51
Strategy Differences Between Delivery Formats	53
CHAPTER IV	55
DISCUSSION.....	55
Opportunities to Enhance Existing Self-Regulated Learning Strategies	55
Opportunities to Develop New Self-Regulated Learning Strategies	58
Personality, Online Experience, and Self-Regulated Learning	60
Learners' Perceptions of Self-Regulated Learning.....	63
Limitations	71
Future Research	72
Conclusion	73
REFERENCES	74
APPENDICES	94
VITA.....	104

LIST OF TABLES

Table 1. SRL Strategy and Associated Phases.....	3
Table 2. SRL Studies and Associated Variables	18
Table 3. Interview Questions Blueprint and Related OSLQ Subscales	34
Table 4. Participant Demographics	38
Table 5. Means and Standard Deviations of Online Strategy for Learning Questionnaire	39
Table 6. Means and Standard Deviations of Big Five Personality Inventory.....	40
Table 7. Influence of Personality Trait on OSLQ Subscales	41
Table 8. Combined Effect of Big Five Category and Number of Online Courses Taken	43
Table 9. Personality Trait Scoring and Classification for Interviews	44
Table 10. Progression of Response Themes to Final Codes	46

CHAPTER 1

INTRODUCTION & LITERATURE REVIEW

The use of self-regulated learning strategies is influenced by a myriad of factors. Instructional content, learner's previous knowledge and skills, characteristics, attitudes, and motivation all play a role in the SRL process. Determining the extent to which various factors influence the deployment and use of SRL strategies is necessary to effectively design and deploy appropriate educational environments. The investigation must move beyond traditional approaches to learner analysis that focus on demographics or standardized test scores to a recognition of the unique traits, attributes, and propensities within each learner that affect the learning process. This recognition should include the extent to which learners exhibit a willingness to try new experiences, are organized and methodic, derive energy from interacting with others, are friendly and cooperative, or exhibit emotional tension and anxiety. This study was designed to explore the interplay between personality traits and the use of self-regulated learning strategies to help facilitate a deeper, more comprehensive view of the learner, thus leading to the development of more effective educational environments.

Self-Regulated Learning Phases

Individuals who are motivated to learn foster the formation and promotion of decisions to act. Those who further cultivate these decisions through purposeful strategies and actions are considered self-regulators (McMahon & Luca, 2001). Motivation is often triggered by external stimuli, such as rewards, and is generally quite susceptible to change as choices that are more desirable appear or obstacles occur that hinder progress. In contrast, self-regulation generally necessitates that learners take direct and specific actions to focus their attention and

efforts on information and tasks that support their goals and block out contradictory information. In essence, self-regulation can be defined as “self-generated thoughts, feelings, and actions undertaken for the purpose of attaining academic goals” (Zimmerman, 1998, p. 73).

Conceptualization of the use of SRL strategies into various phases was proposed by Heckhausen and Kuhl (1985), whereby they noted that the process consisted of a preactional, actional, and postactional phase. Zimmerman (1998, 2002) advocated for a similar conceptualization, noting forethought, performance control, and self-reflection as the three pertinent phases throughout the SRL process. Likewise, Pintrich (2002) derived a four-phase process of SRL that included forethought, monitoring, control, and reflection. It can be argued that Heckhausen and Kuhl’s (1985) action phase, as well as Zimmerman’s (2002) performance control phase, are essentially a combination of Pintrich’s second and third phases, thus casting all three SRL process models in a very similar light.

The first phase, typically labeled as forethought, refers to the processes engaged in by the learner to set the stage for learning achievement, such as goal setting and strategic planning (Barnard-Brak, Paton, & Lan, 2010; Efklides, 2011; Hattie, 2009; Khaled, Gulikers, Biemans, & Mulder, 2016; Puustinen & Pulkkinen, 2001; Winne & Hadwin, 1998; Zimmerman, 1998, 2002;). Zimmerman’s second phase, as well as the combination of Pintrich’s second and third phases, is typically labeled performance or action, and refers to the strategies and actions that occur during the learning process. Actions at this phase include self-instruction, attention focusing, and task strategies (Abrami, Bernard, Bures, Borokhovski, & Tamim, 2011; Brookfield, 2009; Hattie, 2009; Zimmerman, 2002). The third phase, typically labeled self-reflection or evaluation, refers to the strategies and actions that occur after the learning process has ended (Boekaerts, 1997; Borkowski, 1996; Pintrich & DeGroot, 1990; Winne, 1996). In this

phase, learners “self-evaluate based upon social comparisons and adjust the implementation of skills and strategies in the forethought and performance control phases for the next learning task” (Barnard-Brak et al., 2010, p. 63).

Types of Self-Regulated Learning Strategies

Although there are a variety of SRL strategies that can occur during the forethought (FT), performance control (PC), and self-evaluation (SE) phases, Table 1 provides the description and phase placement of six commonly exhibited strategies (Effeney, Carroll, & Bahr, 2013; Zimmerman & Martinez-Pons, 1990). Measurement of the use of these six strategies is the purpose of the instrument used for this study (OSLQ), which will be discussed in more depth in subsequent sections.

Table 1
SRL Strategies and Associated Phases

<u>SRL Strategy</u>	<u>Strategy Description</u>	<u>FT</u> <u>Phase</u>	<u>PC</u> <u>Phase</u>	<u>SE</u> <u>Phase</u>
Goal Setting	Learner efforts to establish goals and subgoals to help plan the sequencing, timing, and completion of academic tasks.			
Environmental Structuring	Learner efforts to select and arrange the physical or technical setting to make learning easier.			
Task Strategies	Learner efforts to actively utilize specific strategies to achieve desired goals.			
Time Management	Learner efforts to consider what must be done and devote an appropriate amount of time to each task.			

Table 1 (Continued)

<u>SRL Strategy</u>	<u>Strategy Description</u>	<u>FT</u> <u>Phase</u>	<u>PC</u> <u>Phase</u>	<u>SE</u> <u>Phase</u>
Help Seeking	Learner efforts to secure additional task information from a variety of sources, such as an instructor, classmate, or outside resource.			
Self-Evaluation	Learner efforts to gage the progress and quality of their work towards desired goals.			

Research on the use of these SRL strategies is generally undertaken with the aim of exploring one of the following: a) which strategies are used most frequently and in which learning environments, b) the effects of the use of one or more specific strategies, and c) the effectiveness of one strategy as compared to others. In considering strategy use frequency, Zimmerman and Martinez-Pons (1986) noted that high-achieving students more frequently took actions directed at acquiring information or skills involving “agency, purpose (goals), and instrumentality self-perceptions” (p. 615). Such actions could be classified under task strategies and reflection, which fall within the performance control and self-evaluation phases. In regard to the context within which learning occurs, Broadbent (2017) concluded that online learners use SRL strategies slightly more frequently than students in blended classes, although the usage differences were not seen across all strategies or SRL phases. Indeed, help seeking was one of the strategies that was not used more frequently by online learners, although one might expect that it would be, given the communication and technical complexities often associated with online learning. Subject area has also been shown to affect the use of SRL strategies, in that usage variations have been noted across mathematics, English, and social studies domains (Broadbent, 2017; Wolters, Shirley, & Pintrich, 1996). Gender has been shown to play a role as well, with females

exhibiting more cognitive strategy use than males, as well as more frequent use of help seeking strategies (Kizilcec, Perez-Sanagustin, & Maldonado, 2017; Wolters, et al., 1996).

Each of the strategies in Table 1 have been investigated in regard to use and effectiveness. Goal setting, in particular, has been heavily researched, with findings indicating that goal setting appears to be used more frequently in the forethought phase by high achieving students (Bannert, Reimann, & Sonnenberg, 2014; Effeney, et al., 2013; Ridley, Schutz, Glanz, & Weinstein, 1992). Moreover, goal setting has been shown to be an extremely effective strategy in Massive Open Online Course (MOOC) environments, likely because learners must take it upon themselves to set and meet goals within the MOOC's less structured environment (Kizilcec, et al., 2017).

The effectiveness of time management strategies is also a common research focus, with most findings indicating that effective deployment of time management strategies has a positive influence on academic achievement and self-control (Britton & Tesser, 1991; Broadbent, 2017; Eilam, Zeidner, & Aharon, 2009). In regard to the emotional and affective state of postsecondary learners, effective time management strategies have been shown to alleviate computational anxiety in statistics classes, increase positive attitudes towards mathematics, and reduce perceived stress levels (Häfner, Stock, & Oberst, 2015; Kesici, Baloglu, & Deniz, 2011).

Research on the use and effectiveness of self-evaluation strategies is also plentiful, with findings indicating that the ability to successfully and consistently monitor comprehension and task progress is positively correlated to academic achievement, higher order thinking skills, improved self-efficacy, and positive attitudes towards learning (Bannert, et al., 2014; Effeney, et. al., 2013; Stromso & Braten, 2010).

Research Perspectives on Self-Regulated Learning

Research on factors that affect SRL has developed from a desire to investigate precisely how, when, and why learners employ strategies to maintain goal-oriented behavior and overcome obstacles, discouragement, and attrition to achieve academic goals (Hill, 2002; Keller, 2008; Lorenzo, 2015; Muilenburg & Berge, 2005). Historically, much of this research had been conducted under the auspices of two general perspectives: student approaches to learning and information processing approaches. More recently, however, a more robust perspective has emerged to address a research approach that serves as both a measurement tool and a learning action intervention (Panadero, Klug, & Järvelä, 2016).

Student Approaches to Learning Perspective. Student approaches to learning are often characterized by a somewhat static model that relies heavily on students' perspectives and beliefs about their own learning. Within this framework, both qualitative and quantitative methods are used to determine what learners do and why. Qualitative methods include interviews with learners regarding their motivation and study habits. A common interview instrument is the Self-Regulated Learning Interview Scale (Zimmerman and Martinez-Pons, 1986), which was developed in a free-response format rather than an option-item format to allow learners to articulate the strategies they use rather than possibly being influenced by or limited to a set number of response choices. Quantitative methods generally involve self-report measures such as surveys or questionnaires (Dyne, Taylor, & Boulton-Lewis, 1994; Entwistle & Waterston, 1988; Marton & Säljö, 1976; Pintrich, 2004). The Motivated Strategies for Learning Questionnaire (Pintrich, Smith, Garcia, & McKeachie, 1993) and Learning and Study Strategies Inventory (Weinstein, Schulte, & Palmer, 1987) are among the most commonly used instruments for

gathering information on students' SRL use. Each was developed primarily for use with higher education students to assess their awareness and use of SRL strategies.

Broadbent and Poon (2015) systematically reviewed nine studies designed to examine the use of SRL strategies in relation to academic achievement for students enrolled in an online or web-based course. Academic achievement was defined in several ways among the nine studies, including test grade, end of course grade, overall grade point average, and self-classified student rating of online course/degree. Each of the nine studies chosen for the review included the use of the Motivated Strategies for Learning Questionnaire as the means to collect self-reported student data on their use of SRL strategies. Strategies investigated in the nine studies included self-monitoring, time management, effort regulation, elaboration, organization, and rehearsal. An analysis of the data gathered from the Motivated Strategies for Learning Questionnaire indicated that in five of the nine studies, no significant correlation was found between academic achievement and the SRL strategy being examined. In three of the remaining four studies, small to medium correlations were noted, with the final study yielding a large statistically significant positive correlation between academic achievement, represented by final course grade, and the SRL construct of peer learning, also expressed as online interaction (Johnson, Gueutal, & Falbe, 2009).

Social Learning Theory

This study framed research into the use of SRL strategies within the context of social learning theory. From this perspective, the development of SRL skills is a function of the learner's internal conditions as they relate to self-efficacy and also reflect an emphasis on human motivation and feelings. This perspective also reflects principles of humanism, in that it

acknowledges the extent to which learner feelings and motivations can influence the learning process (Richey, Klein, & Tracey, 2011).

Moreover, Bandura (1978) noted that considering SRL from a social learning framework allows for the inclusion of “cognitive structures and sub-functions for perceiving, evaluating, and regulating behavior” (p. 344). Cognitive factors determine, in part, how instructional events and activities will be perceived, evaluated, managed, and acted upon. This framework undergirds two important considerations. First, that all learners possess and utilize various SRL skills, but the extent of utilization and the overall effectiveness varies greatly from learner to learner. Second, that learners can be taught to develop missing strategies or strengthen existing ones (Azevedo & Cromley, 2004; Bol & Garner, 2011; McClelland, Geldhof, Cameron, & Wanless, 2015).

Learner Needs Analysis

Traditional approaches to learner analysis often favor a general systems or instructional systems approach that focuses mainly on instructional content and the learner’s previous knowledge of that content. This approach is somewhat limiting and stands in opposition to Dick, Carey, and Carey’s (2005) assertion that a learner analysis should take into account the learners’ attitudes, motivation, and learning preferences. Pursuing learning analysis from a social learning theory perspective allows for the recognition of learner characteristics, attitudes, and motivation to help designers and practitioners provide meaningful, relevant, and learner-centered instruction (Richey, et al., 2011).

While inclusion of these elements is a starting point, more could be done. Stefaniak and Baaki (2013) described a multi-layer approach to understanding who learners are and what they truly need. The authors noted that this multi-layer approach to learner analysis can provide a “clearer view of who our learners are as individuals, as well as the environment within which

they operate” (p. 9). In that vein, an integral component of this proposed study is an attempt to move learner analysis beyond demographic data and attitudes or motivation to capturing some of the complexities surrounding the activation and use of learner self-regulatory systems. Doing so would do much to help identify not only *what* our learners are but *who*, which in turn could inform the design and development of instruction and positively impact the learning process.

Accordingly, this study examined the use of SRL strategies by identifying some of the unique traits, attributes, and propensities within each learner that affect the learning process. Recognizing the impact of various personality traits on SRL can aid in the development of instructional materials and activities, particularly those related to helping learners enact dormant SRL strategies or improve the effectiveness of strategies they currently deploy. The following four research questions informed the design of the study.

RQ1: Do learners who exhibit higher levels of openness, conscientiousness, extraversion, or agreeableness score higher on SRL strategy use than those who exhibit lower levels?

RQ2: Do learners who exhibit higher levels of neuroticism score lower on SRL strategy use than those who exhibit lower levels?

RQ3: What is the relationship between personality traits, number of online courses taken, and use of SRL strategies?

RQ4: How do learners describe their SRL strategy use among different personality trait types?

These questions examined the potential relationship between common personality traits and the use of SRL strategies. These questions may also offer insight into the potential correlation between common personality traits that impact the use of SRL strategies and course specific variables, such as delivery method.

LITERATURE REVIEW

In this section, I begin with an overview of self-regulated learning. Next, I discuss Zimmerman's framework for self-regulation that includes three phrases: forethought, performance, and self-reflection. Then, I discuss learner characteristics known as the Big Five Personality Traits, which include openness, conscientiousness, extraversion, agreeableness, and neuroticism. After presenting research on the use of self-regulated learning strategies in relation to personality types, I discuss the use of self-regulated learning within the context of course delivery methods. Finally, I discuss the relationship between personality traits, course delivery method, and the use of self-regulated learning strategies.

Models of Self-Regulated Learning

Most self-regulated learning models share a set of common assumptions. One assumption is that learners are viewed as active participants in the learning process who employ a variety of cognitive and metacognitive strategies based on the information available to them in order to regulate and manage their learning (Abrami, et al., 2011; Mega, Ronconi & De Beni, 2014; Nicol & Macfarlane-Dick, 2006; Pintrich, 1999, 2004; Pintrich, et al., 1990; Valle, et al., 2008). Moreover, learners are thought to use various standards or criteria by which to determine whether the learning process should continue as is or if adjustments are needed (Azevedo & Cromley, 2004; Mezirow, 1990; Zimmerman, 2002, 2005). As such, learners are expected to be able to recognize when they are off track and make modifications to correct themselves to some degree. Finally, it is assumed that the learner's self-regulatory activities serve as mediators that affect achievement or performance. In essence, the extent to which learners perform well in their academic settings is in part influenced by the self-regulatory activities exhibited within those

environments (Barnard-Brak, et al., 2010; Nelson, Shell, Husman, Fishman, & Soh, 2015; Pintrich, 2004; Pintrich, Roeser, & DeGroot, 1994).

Self-Regulated Learning Profiles

Despite the value of a clear understanding of SRL within the instructional process, research in the area of specific classifications, or profiles, is limited. Barnard-Brak, et al. (2010) identified five distinct profiles in terms of the extent to which SRL strategies and skills were employed by the learner: Profile 1 – seldom to never used; Profile 2 – used highly in the forethought phase; Profile 3 – used highly in the performance control and self-reflection phases; Profile 4 – used highly across all subscales; and Profile 5 – used moderately to highly across all subscales but less than Profile 4.

Shell and Soh (2013) investigated SRL profiles as a function of motivation and also identified five distinct profiles: Profile 1 – highly motivated, by-any-means performer; Profile 2 – intrinsically motivated, knowledge-building performer; Profile 3 – utility motivated surface learning performer; Profile 4 – disengaged unmotivated performer; and Profile 5 – motivated but unable to effectively self-regulate performer.

In a more recent study, Dörrenbächer and Perels (2016) attempted to identify subgroups of learners based on their SRL strategy use, motivational level, and personality traits. They identified four SRL profiles: a) low SRL with moderate motivation, b) moderate SRL, c) conflicting SRL with high motivation, and d) high SRL. The interesting aspect of this study was its use of learner personality traits as an indirect construct.

While these studies and the resultant SRL profiles provide a means by which to categorize learners' use of SRL strategies and skills, they fail to explore how these profiles may be used to develop a better understanding of learner needs in higher education settings,

particularly in the online environment. Although there have been numerous studies focused on the use of SRL strategies and skills, the majority of this work to date has failed to create an adequate basis for practical application of the findings. That is, what benefit is there in categorizing learners into SRL profiles? The current body of research on SRL profiles could benefit from a more focused approach as a means to transition from merely identifying SRL profiles to using them to develop a deeper understanding of who our learners are and how to better meet their educational needs.

Research has developed in an attempt to categorize learners into various profiles based on how they are and are not self-regulating throughout the learning process. In view of this conceptualization, “self-regulated learning is seen as a mechanism to help explain achievement differences among students and as a means to improve achievement” (Schunk, 2005, p. 85). The construction of SRL profiles and how learners can be categorized into them generally proceeds from one of two approaches: variable-centered or person-centered.

Variable-Centered Approach. A variable-centered approach to the construction of SRL profiles and the classification of learners into those profiles focuses on which SRL strategies are most important for learning and how those strategies might be improved (Dörrenbächer & Perels, 2016). The aim of such an approach is to examine the structure of self-regulation factors, the unique effects of particular factors, and the relation of each factor to other variables in order to predict outcomes, relate independent and dependent variables, or assess intervention effects (Marsh, Ludtke, Trautwein, & Morin, 2009, p. 192).

Nelson, et al., (2015) investigated the extent to which a number of self-regulation and motivational variables differed among SRL profiles of engineering students in a foundational computer science course. The five profiles included two adaptive clusters, Strategic and

Knowledge Building, and three maladaptive clusters, Apathetic, Surface Learning, and Learned Helplessness (Shell & Husman, 2008; Shell & Soh, 2013). The 18 variables included in the study fell within one of two general categories: self-regulation and motivation, each with a number of subvariables (Nelson, et al., 2015). Findings indicated that self-regulation was highest among those classified into the Strategic and Learned Helplessness profiles, moderate among those classified into the Surface Learning profile, and lowest among those classified into the Knowledge Building and Apathetic profiles. Not surprisingly, the data indicated a ‘mirror image’ of these findings on the lack of regulation variable. Those classified into the Strategic and Learned Helplessness profiles were lowest in lack of regulation, while those classified into the Knowledge Building and Apathetic profiles were highest in lack of regulation. Overall, results indicated that the most significant subvariables for determining profile classification were learning avoid, positive affect, learning approach, knowledge building, strategy use, perceptions of instrumentality, high-level question asking, lack of regulation, and task avoid.

Person-Centered Approach. In contrast to a variable-centered approach to the construction of SRL profiles and the classification of learners into those profiles, a person-centered approach focuses on groups of individuals with similar profiles rather than relationships among variables. The aim of such an approach is to classify learners into groups who are similar to one another yet different from those in other profile groups (Marsh, et al., 2009). Marsh, et al. (2009) used a combination of variable-centered and person-centered approaches in a study that examined the interplay of learner profiles, perceptions of academic self-concept, and variables associated with academic achievement. Academic self-concept related to the learner’s perceptions of his general academic abilities in the areas of verbal and math skills, problem solving, intellect, artistic ability, political awareness, technical processes, and computer skills.

For this study, academic achievement was operationalized into ten correlates and grouped as follows: a) one demographic variable (gender), b) two achievement test score variables (math and English), c) three course grade variables (math, English, German), d) three advanced course grade variables (math, English, German), and e) one total variable (total grade). Their findings indicated that while there were significant variances related to each correlate, the correlates as a set accounted for roughly a quarter of the variance in academic self-concept. Likewise, approximately 26% of the variance in the set of correlates could be attributed to the set of academic self-concept constructs.

The purported value of a person-centered approach over that of a variable-centered approach is that using the former expands the investigative scope of SRL research into how it relates to individual factors, such as learner personality traits. Personality traits have been described as “individual differences that are stable across time and situations and that explain a person’s patterns of cognition, behavior, and emotions” (Dörrenbächer & Perels, 2016, p. 230). The development of SRL profiles from a person-centered approach involves identifying the relationship between various personality traits and one or more SRL strategies. For example, conscientiousness and openness to experiences have been positively correlated with the use of metacognitive and elaboration strategies, as well as with more frequent use of time management and effort regulation strategies. Conversely, the overall effects of neurotic personality traits have been shown to negatively impact the learning process (Bidjerano & Dia, 2007).

A Framework of Self-Regulated Learning

Zimmerman’s (1998) three-phase conceptualization of self-regulation focuses on the states involved in the process—the thoughts and actions that occur during the forethought, performance control, and self-evaluation phases. This state-based process can be viewed as

cyclical in nature and containing a crucial feedback component. It is the feedback component that prompts learners to evaluate their progress and make adjustments accordingly when needed. As such, goal setting and motivation come prior to structuring and managing individual tasks. Likewise, self-reflection occurs once learners have engaged in the first two phases and have generated output on which to self-reflect (Schmitz & Wiese, 2006). Although this representation of the SRL process appears sequential and time-ordered, it does not necessarily occur in strict linear fashion. Indeed, learners may very well return to an earlier phase or begin a task without forethought or planning. Phases can happen concurrently as well, with planning and self-monitoring ongoing throughout the learning process, while goals are revised as self-feedback is developed and processed (Muis, 2007).

During the forethought phase, effective self-regulation takes the form of goal setting and environmental structuring and is highly susceptible to influence by intrinsic and extrinsic factors. It is also during this phase that learners make judgments about their ability to successfully complete assigned tasks (self-efficacy), which can have a significant impact on self-regulatory components such as effort and persistence (Schmitz & Wiese, 2006).

During the performance control phase, effective self-regulation takes the form of various metacognitive and resource-management strategies, such as task strategies, time management, and help seeking. When effectively employed, these strategies assist learners in stopping negative thoughts, utilizing self-motivation tactics, avoiding procrastination, and dealing with distractions. (Schmitz & Wiese, 2006).

During the final phase, self-evaluation, results produced during the first two phases are judged. Effective self-regulation during this phase is characterized by self-reflection to compare behavior and outputs to stated goals. Comparisons may be made based on quantity or quality of

work, or in relation to how others in the same educational setting have performed. Recognizing deficits between goals and actual performance is not sufficient at this stage. Indeed, the crucial component in the self-evaluation phase is goal or strategy modification based on the results of learner self-reflection.

Big Five Personality Traits

The Big Five Personality Traits are broad domains which define human personality and account for individual differences. The Big Five include openness, conscientiousness, extraversion, agreeableness, and neuroticism. People who exhibit openness typically like to learn new things, are insightful and imaginative, and have a wide variety of interests. People who exhibit conscientiousness are typically reliable, prompt, organized, methodic, and thorough. Extraverts are described as deriving energy from interacting with others, as well as being energetic, talkative, and assertive. Those exhibiting agreeableness are typically friendly, cooperative, compassionate, kind, affectionate, and sympathetic. Finally, neuroticism typically exhibits as emotional instability or negative emotions, moodiness, and tension or anxiety.

The classification and use value of these traits has been researched and refined over several decades. Seminal work in the area of personality traits can be traced back to Allport and Odbert (1936) and Thurstone (1934, 1951), whose works focused on estimating or identifying the number of personality-related words in the English language. Subsequent research typically focused on attempts to categorize and refine personality-related terms into consistent groups (Cattell & Coan, 1957; Digman, 1972; Fiske, 1949; Norman, 1967; Peabody & Goldberg, 1989; Thurstone, 1934; Tupes & Christal, 1958, 1961). The results from these studies yielded more controversy than consensus. Indeed, results indicated a wide range of possibilities—from the existence of a dozen or more major personality traits, to identification of five or six, to others

who asserted as few as three. Drastic differences among the results of personality trait research gave way to three discreet “Goldielocks-like” camps among researchers: those who believed five was too few, those who believed five was too many, and those who believed five was just right.

In an attempt to either lend credence to their own position or disprove fellow researchers, numerous studies were undertaken in an attempt to quantify and optimize ways to categorize personality traits. Results of these endeavors had unexpected consequences, with many of the five-factor opponents eventually becoming supporters. For example, Digman (1989) originally noted at least 10 factors of child personality and assumed the possibility of even more for adults. In later research, however, the author acknowledged that “striking interstudy correspondence” was only achieved when five factors were rotated as opposed to six or more (as cited in Goldberg, 1993, p. 28). On the opposite end of the spectrum, Peabody (1967), who supported a smaller, three-factor framework, eventually partnered with Goldberg (1989) in supporting a structure that was “quite similar, but not identical” to the five-factor model (as cited in Goldberg, 1993, p. 30). Likewise, Costa and McCrae’s 1980 model that included only neuroticism, extraversion, and openness grew over the next few years to eventually include agreeableness and conscientiousness as foundational factors.

Based on personality-trait research and the five-factor model described above, John (1990) developed a 44-item self-report instrument designed to measure the extent to which a person exhibits each of the five factors. The Big Five Inventory (see Appendix C) will be deployed for this study and is discussed in greater detail in the Method section.

Self-Regulated Learning and Personality Traits

Personality traits have emerged as an area of interest in regard to the learning environment, particularly the relationship between these traits and academic achievement. Indeed, the majority of research related to personality and learning has focused on its relationship to achievement (Bonaccio & Reeve, 2010; Chamorro-Premuzic & Furnham, 2003; Kesici, et al., 2011; Wilson & Narayan, 2016). Consequently, little attention has been given to connections between personality traits and the use of SRL strategies, thus creating opportunities to address an area that has to date been under-researched. Table 2 provides a summary of SRL studies and the variables each sought to explore. These particular studies were selected from existing research because the variables each explored were most closely related to personality traits and various facets of self-regulation.

Table 2

SRL Studies and Associated Variables

<u>Author(s)</u>	<u>Year</u>	<u>Variables explored</u>	<u>Delivery Method & Audience</u>
Bonaccio & Reeve	2010	Test anxiety, perceptions of test, self-perception, perception of test-taking situations	Face-to-Face, College undergraduates
Chamorro-Premuzic & Furnham	2003	Personality traits, academic achievement (absenteeism, writing and exam scores)	Face-to-Face, College undergraduates
Fadlelmula, Cakiroglu, & Sungur	2015	Motivational beliefs, self-efficacy, SRL strategy use, achievement	Face-to-Face, 7 th grade Turkish students

Table 2 (Continued)

<u>Author(s)</u>	<u>Year</u>	<u>Variables explored</u>	<u>Delivery Method & Audience</u>
Kesici, Baloglu, & Deniz	2011	SRL strategy use, statistics anxiety	College undergraduates
Muis	2017	Epistemic beliefs, SRL strategy use	Meta-analysis
Pintrick & DeGroot	1990	Motivational orientation, SRL strategy use, academic performance	Face-to-Face, 7 th grade students
Said	2013	Executive functions, time management, metacognitive strategies, self-efficacy	Face-to-Face, College undergraduates
Steiner	2016	Deliberate practice of active reading, time management, environment structuring, metacognitive reflection	Face-to-Face, College undergraduates
Tabachnick, Miller, & Relyea	2008	Distal future goals, subgoals, perception of task instrumentality, SRL strategy use	Face-to-Face, College undergraduates
Valle, et al.,	2008	SRL profiles/categories based on time management, metacognition, environment structuring, organization, elaboration	Face-to-Face, College undergraduates

Table 2 (Continued)

<u>Author(s)</u>	<u>Year</u>	<u>Variables explored</u>	<u>Delivery Method & Audience</u>
Wilson & Narayan	2016	SRL strategy use, self-efficacy, academic performance	Blended learning, College undergraduates
Zimmerman & Kitsantas	2005	Homework practices and self-efficacy	Face-to-Face, 9-12 th grades, Parochial school
Zimmerman & Martinez-Pons	1990	Perceived use of SRL strategies, verbal proficiency, math efficacy	Face-to-Face 5, 8, & 11 th grade students

The primary focus of the majority of studies noted above was on achievement. That is, they sought to better understand the ways in which a number of aspects related to self-regulation affected academic performance. Chief among these aspects were self-efficacy, test anxiety, perception of future goals, time management skills, homework practices, past performance, and epistemic beliefs. Although recognizing learners' personality traits has been characterized as foundational for understanding individual differences within the learning environment (Eilam, et al., 2009; Geisler-Brenstein, Schmeck, & Hetherington, 1996; Zimmerman, 1989), a search of the literature revealed a scant few studies that focused on personality traits as predictors of the use of SRL strategies. Yukselturk and Top (2013) explored possible links between 10 entry characteristics and the use of SRL strategies. Entry characteristics for the study included gender, age, work status, self-efficacy, online readiness, self-regulation, participation in discussion list, participation in chat sessions, satisfaction, and achievement. Although the study constituted an earnest endeavor to bring more clarity to the ways in which various learner characteristics might affect the learning process, it did little to address the deep-rooted personality traits of the

learners. These characteristics may have expressed demographically who the learners were and what they did within the scope of the course, but the focus was not on underlying personality traits that form the basis for these actions.

Tezci, Sezer, Aktan, and Gurgan (2016) investigated the correlation between learners' social lifestyles and their use of SRL strategies. In this instance, Kern and Cummins' (1996) Lifestyle Inventory was used in order to gather data on social lifestyle behaviors. The Lifestyle Inventory measure consists of five dimensions: control, perfectionism, appreciation, self-respect, and expectations, with dimensions further separated into several additional sub-dimensions each. As noted by Tezci, et al. (2016), findings yielded positive correlations between SRL strategies and all five dimensions, indicating that learners with high scores on one or more of the Lifestyle Inventory dimensions also use SRL strategies more frequently and effectively. However, social lifestyle dimensions do not necessarily match in definition or manifestation to the Big Five traits. As such, findings from this study indicating that higher scores on social lifestyle scales correlated positively to more frequent use of SRL strategies cannot be assumed for personality factors that fall outside the scope of those used on the Lifestyle Inventory.

In a review of the literature investigating the connection between personality traits and learning, De Raad and Schouwenburg (1996) noted nearly a decade's worth of research related to personality traits and academic achievement. In generalizing the findings from the most recent studies they reviewed, the authors noted that all Big Five factors appeared to have some impact on learning, although the extent and scope of each factors' impact differed among the research. In a summary of the body of work they reviewed, De Raad and Schouwenburg (1996) concluded that prior research did indeed indicate that various personality traits are at the core of the domain

of learning and education. However, none of the studies reviewed by the authors focused on personality traits as a predictor for the use of SRL strategies.

To date, Dörrenbächer and Perels (2016) have provided the most focused research related to how personality traits might influence the use of SRL strategies. The authors used the Big Five Inventory, along with measures of SRL strategy use, to survey 337 undergraduate students from a variety of disciplines, including pre-service teaching, psychology, language and cultural studies, economics, law, and natural sciences. Findings indicated that learners characterized by lower levels of neuroticism reported moderate to high SRL strategy use. Likewise, learners characterized by higher levels of extraversion, conscientiousness, agreeableness, and openness also reported moderate to high SRL strategy use. Achievement was significantly higher for students with high SRL use and high motivation, and students who were most effective at employing SRL strategies were found to exhibit lower neuroticism, as well as higher extraversion, agreeableness, and openness to experiences.

While Dörrenbächer and Perel's (2016) findings provide a glimmer of understanding in regard to the effect of personality traits on the use of SRL strategies, more research is certainly warranted to confirm or refute their findings. Given the lack of additional research focused on the existence of the Big Five personality traits and their effect on learner self-regulation, it is unwise to draw conclusions or generalize the findings beyond the scope of the Dörrenbächer and Perel's (2016) study.

Self-Regulated Learning in Online Environments

Researchers have noted that online learning environments present a different set of challenges than do traditional settings (Andrade, & Bunker, 2009; Deimann & Bastiaens, 2010; Deimann & Keller, 2006; McBrien, Jones, & Cheng, 2009). Differences include how

information is accessed and organized, learner control over instructional scope and pace, and how to address technical issues associated with the online environment.

Although research suggests that the need for strong and well-developed self-regulation strategies in online learning environments is essential, distance learners are often found to be less self-regulating in engaging in academic activities than learners in traditional settings (Bol & Garner, 2011; King, Harner, & Brown, 2000; Muilenburg & Berge, 2005; Shih & Gamon, 2002; Yukselturk & Bulut, 2007). In a large-scale factor analysis study, Muilenburg and Berge (2005) identified learner motivation as one of the four most critical barriers to online learning success. In fact, findings yielded medium to high effect sizes with learner motivation and several of the study variables, including ability and confidence with online learning technology ($n^2 = 0.124$), effectiveness of online learning ($n^2 = 0.213$), online learning enjoyment ($n^2 = 0.161$), online courses completed ($n^2 = 0.112$), and the likelihood of taking a future online course ($n^2 = 0.146$).

In a study aimed at enhancing teaching and learning in online courses, Kanuka (2002) noted three important principles to facilitate the use of SRL strategies related to building meaning around course content. Strategy 1 involved providing activities where learners could make sense of the information to be presented, which related to Zimmerman's forethought/ phase of SRL. Strategy 2 involved providing activities where learners could generate relationships from the information presented, which related to the performance control phase. Strategy 3 involved providing activities where learners could engage in reflection about the information presented, which related to self-reflection I phase. Moreover, the study highlighted the importance of providing opportunities for learners to develop and use a variety of learning strategies to enhance meaningful understandings.

Lynch and Dembo (2004) identified five self-regulatory skills that were found to be predictive of academic success in online environments: intrinsic goal orientation, self-efficacy for learning, time and study management, help seeking, and Internet self-efficacy. In subsequent studies, goal setting, self-efficacy, time and study environment, and effort management strategies were established as factors leading to better academic performance in distance education environments (Puzziferro, 2008).

Whipp and Chiarelli (2004) provided additional insight into how SRL strategies may be adapted and used within online learning environments. Their findings indicated that although learners used many traditional SRL strategies in online courses, a number of these strategies were adapted to fit the unique requirements of an online environment. For example, important elements of the forethought phase include goal setting and planning. Learners in traditional face-to-face environments often use calendars, planners, or graphic organizers during this phase. Within the online environment, however, Whipp and Chiarelli (2004) noted the adaption of traditional organization and planning tools to include the use daily logons and scheduling tools. In addition, they highlighted several adaptations to the use of SRL strategies during the performance control phase, such as sorting discussion posts, locating fast computer and Internet connections, utilizing web-based technical support, and frequently checking their scores in the online gradebook. Although this study was quite limited in that the sample size was only six students, it did provide a basis from which to build future research in regard to the evolution of traditional SRL strategies or the development of new ones that better meet the requirements of online learning environments.

In a complementary study, Barak, Dorri, and Hussein-Farraj (2016) identified a number of SRL skills required for successful online learning. Specifically, they noted that cognitive

strategy use and the regulation of cognition had a significant impact on successful online learning. From responses garnered from an online survey and semi-structured interview, the authors noted that online learners provided more statements related to cognitive strategies and regulation of cognition than did face-to-face learners, suggesting that the online environment fosters a greater sense of awareness in regard to mastery learning and information processing. If this is the case, leveraging this heightened awareness could lead to an increase in the use of effective SRL strategies, which in turn holds promise for improved academic performance and learner success.

Personality Traits, Online Learning, and Self-Regulation

A search of the literature related to the interplay between personality traits on the use of self-regulated learning strategies within the context of online education yields little findings. Research exists on the duos of personality traits and self-regulation (Dörrenbächer & Perels, 2016; Komarraju, Karau, & Schmeck, 2009; Tezci, et al., 2016; Yukselturk & Top, 2013), personality traits and online learning (Cohen & Baruth, 2017; Keller & Karau, 2013; Omheni, Kalboussi, Mazhoud, & Kacem, 2017; & Varela, Cater, & Michel, 2012), and online learning and self-regulation (Barak, et al., 2016; Kanuka, 2002; Muilenburg & Berge, 2005; Whipp & Chiarelli, 2004; & Wilson & Narayan, 2016). However, the trio of personality traits, online learning, and the use of self-regulated learning strategies has been severely under-researched to date.

Purpose of the Study

The purpose of this study was to investigate the relationship between the Big Five personality traits and the use of SRL strategies. Specifically, I sought to extend research on the potential to use the existence of the specific personality traits of openness, conscientiousness,

extraversion, agreeableness, and neuroticism as possible predictors of learner use of SRL strategies. The study investigated the extent to which the use of SRL strategies may be impacted by learner differences in terms of Big Five personality traits. This study furthers a line of inquiry regarding the predictability of the use of SRL strategies based on the presence of specific personality traits (Bidjerano & Dai, 2007; Dörrenbächer & Perels, 2016). Follow-up interviews conducted as part of the study also provided an opportunity for participants to further describe and add meaning to their experiences with the use of self-regulated learning strategies.

A number of important considerations were gleaned from the proceeding literature review that impacted the development of research questions associated with this study. Chief among them was the recognition that learners are active participants who initiate, manage, and evaluate their own learning (Azevedo & Cromley, 2004; Barnad-Brak, et al., 2010; Mega, et al., 2014; Mezirow, 1990; 2014; Nelson, et al., 2015; Nicol & Macfarlane-Dick, 2006; Pintrich, 1999; Pintrich & DeGroot, 1990; Valle, et al., 2008; Zimmerman, 2002, 2005). This is a crucial premise, as it sets the stage for exploring the various strategies learners employ to reach their learning goals. Another relevant facet of the research on SRL was the relationship between strategy use and individual learner traits. As Efklides (2011) asserted, “individuals bring along with them more or less stable person characteristics...which are independent from the particular task to be carried out and which mediate the representation of the task” (pg 10). Personality traits are clearly measurable, and learners can subsequently be grouped into various personality categories based on these findings (Costa & McCrae, 1980; Digman, 1989; Goldberg, 1989, 1993; John, 1990; Peabody, 1967). In making such determinations, the relationship between personality classifications and academic achievement are well researched (Bonaccio & Reeve, 2010; Chamorro-Premuzic & Furnham, 2003; De Raad & Schouwenburg, 1996; Kesici, et al.,

2011; Wilson & Narayan, 2016). However, the correlation between specific personality types and high or low deployment of SRL strategies has received much less scrutiny (Bidjerano & Dai, 2007; Dörrenbächer & Perels, 2016), and data from previous research were insufficient to determine the full extent to which personality might impact the use of SRL strategies. Thus, each of the research questions formulated for this study sought to further explore the interplay between personality traits and SRL strategy use.

Based on the proceeding literature review, this author formed several hypotheses prior to data collection and analysis. First was the supposition that learners exhibiting higher levels of extraversion, conscientiousness, agreeableness, or openness would report more frequent use of SRL strategies (Dörrenbächer & Perels, 2016; Tezci, et al., 2016). Conversely, I hypothesized that learners exhibiting higher levels of neuroticism would report less frequent use of SRL strategies (Dörrenbächer & Perels, 2016; Tezci, et al., 2016). Another conjecture at the beginning of the study was that learners within an online environment would likely exhibit less frequent use of SRL strategies than those within a face-to-face setting (Kanuka, 2002; King, et al., 2000; Muilenburg & Berge, 2005; Shih & Gamon, 2002; Yukselturk & Bulut, 2007). Finally, I hypothesized that due to the unique nature of the online environment, conversations with online learners would reflect strategy adaptations that were not necessary within a traditional classroom environment (Barak, et al.; 2016; Whipp & Chiarelli, 2004).

Comparing the existence of various personality traits and their impact on self-regulation will facilitate a broader and more sophisticated understanding of these issues. This increased understanding can inform a variety of support and learner services, including educational orientations, course design considerations, and self-regulation training or remediation. Gaining a deeper awareness of how specific personality traits might play a role in the choice and

deployment of SRL strategies provides opportunities to anticipate which learners might be ineffective self-regulators. The ability to establish such judgments at a much earlier stage in a learner's academic career would likely prompt more timely and effective interventions or SRL strategy training.

CHAPTER II

METHOD

Research Design

The study used a correlational design to explore the interrelatedness between personality traits and the use of self-regulated learning strategies. This research approach is appropriate in that the aim of the study is to explore possible correlations between the two factors as they exist in the learner participant population, rather than inciting change or modifying existing characteristics (Leedy & Ormrod, 2009). As is the hallmark of correlational design, analysis of the data will not be undertaken to determine causation, but rather to identify possible relationships that may exist between variables.

Setting

The research study occurred at a large public university in the southeast region of the United States. The University's diverse study body encompasses an undergraduate population of approximately 19,500, with graduate enrollment just over 4,800. The university's offerings include more than 100 bachelors, masters, and post-master's programs in the areas of arts and letters, business, education, engineering and technology, health sciences, and sciences. The University's active research focus includes the areas of science and modeling, analysis, and simulation.

Participants

Inclusion and Exclusion Criteria

The participants included in this study were graduate students currently enrolled in at least one campus, online, or hybrid course during the Spring 2018 semester. Participants included students at the masters, doctoral, and graduate certificate levels.

Recruitment

Following IRB approval, the recruitment process began with an email sent to all graduate students from the Office of the Dean of the Graduate School. The email contained an overview of the study's purpose, as well as my contact information, the IRB approval number (1201197-1), and the contact information for the Responsible Primary Investigator. Students interested in participating in the study were asked to click on an anonymous link to review the informed consent documentation and accept or decline the request to participate in the study.

The request for participation was emailed to 4,196 enrolled graduate students on March 27, 2018, with a second request sent to 4,233 enrolled graduate students on April 12, 2018. The goal was to obtain a representative sample size to achieve an estimated confidence level of 95% and a margin of error of 5.0% (Field, 2004). Based on the number of requests for participation emailed to students, the target sample size was approximately $n = 350$. From the 452 responses received, the approximately 360 that provided a response for all questions were used during the data analysis phase.

Participants were offered the chance to enter into a random drawing to win one of ten \$5 Amazon gift cards. Participants who wished to enter the drawing were asked to provide their email address upon completion of the survey. Winners were notified via email within 30 days of the survey closing date.

Although student names, addresses, or school identification numbers were not collected as part of this study, the survey instrument did ask for data pertaining to several demographic variables. This information was collected to describe the sample in regard to age, gender, college of enrollment, academic level, and experience with online learning.

Measures

For ease of use and completion expediency, demographic, BFI, and OSLQ items were combined into one survey instrument. The instrument was separated into three sections: one for demographic items, one for BFI items, and one for OSLQ items. Each section began with a brief description and general purpose for the items in that section.

Demographic Section. Demographic items were designed to obtain each participant's age, gender, college of enrollment, academic level, and number of online courses taken (Appendix B).

Big Five Inventory Section. The BFI (John, 1990) is a 44-item measure consisting of five personality scales: extraversion (represented by 8 items), agreeableness (represented by 9 items), conscientiousness (represented by 9 items), openness (represented by 10 items), and neuroticism (represented by 8 items). The instrument provides phrases such as "I am someone who..." followed by the item statement (e.g., "Has an assertive personality"). Based on a 5-point Likert scale ranging from 1 (Disagree Strongly) to 5 (Agree Strongly), respondents were asked to indicate to what degree they agree with the statement provided (Appendix C).

Score reliability and validity of score interpretation have been examined across age, gender, and culture (Soto & John, 2009; Worrell & Cross, 2004). In addition, reliability studies yielded coefficient alphas ranging from .70 to .80 and test-retest reliabilities ranging from .75 to .90 across scale scores. These scores land within the ranges noted by Cortina (1993) in terms of instrument length and reliability, intercorrelation, and precision (Table 2, p. 102).

Online Self-Regulated Learning Questionnaire Section. Barnard, Lan, To, Paton, & Lai (2009) developed the Online Self-regulated Learning Questionnaire (OSLQ), which consists of 24 self-report items. Questionnaire items are spread across six subscales: a) environment

structuring, b) goal setting, c) time management, d) help seeking, e) task strategies, and f) self-evaluation. Higher scores on the assessment indicate better self-regulation in online learning environments (Appendix D).

The OSLQ was developed from an 86-item pool and then examined for internal consistency. The results from two confirmatory factor analyses (Barnard, et al., 2009) indicated a significant chi-square goodness-of-fit statistic, with $\chi^2(246) = 758.79$, $p < .05$ in the first study and $\chi^2(246) = 680.57$, $p < .05$ in the second. Moreover, the ratio of chi-square to degrees of freedom was less than 5 for each study ($\chi^2/df = 3.08$ and 2.77 respectively), indicating an acceptable fit between the survey and sample data. Furthermore, the values of Tucker Lewis Index and the Comparative Fit Index were .95 and .96 respectively for the first study and .93 and .95 for the second, thus lending additional credence to the appropriateness of the fit.

Procedure

Potential participants were invited to complete the survey via an email from Office of the Dean of the Graduate School. All master's and post-master's students enrolled in at least one course during the Spring 2018 semester were invited to participate in the study. The invitation email provided a description of the purpose of study, information on survey length, and approximate time to complete. Potential participants were informed that they would be asked to reflect on their study habits and attitudes regarding their educational activities in order to rate their use of various self-regulation strategies. Those who completed the survey were given an opportunity to provide their email in order to enter into a random drawing to receive one of 10 five-dollar Amazon gift cards.

Those who chose to participate in the study were asked to complete an online survey consisting of 73 items separated into three sections: Demographic information (consisting of 5

items), BFI information (consisting of 44 items), and OSLQ information (consisting of 24 item). Each section included a brief description and purpose for that section. Both BFI and OSLQ items were rated on a 5-point Likert scale that ranged from 1 = Disagree strongly to 5 = Agree strongly.

The survey was originally launched on March 27, 2018, with a second request for participation emailed to enrolled graduate students on April 12, 2018. The survey remained open until April 20, 2018. At that point, data was downloaded from the Qualtrics survey system into Microsoft Excel, and then into SPSS for statistical analysis. As the final question on the survey instrument, participants were asked to indicate their willingness to participate in a follow-up telephone interview. The original goal was to use a purposeful sample to select three participants from each of the Big Five personality trait categories to be interviewed, for a total of 15 interviewees. Selecting the interview sample in this manner necessitated analyzing data from the Big Five survey items, determining which personality trait category each participant was identified as exhibiting, and then randomly selecting participants from each category. However, the small number of respondents classified into the neuroticism category made it impossible to select three participants from that category. Thus, only two participants from the neuroticism category were selected, and a fourth was added to the interviewees from the conscientiousness category—thus maintaining the sample at 15. Each potential interviewee was contacted via email from the researcher to confirm willingness to participate in the interview and schedule an interview date and time. Interviews were conducted over a period of 14 days.

Semi-structured Interview

Participants who indicated a willingness to participate in a follow-up telephone interview were asked a series of questions to further describe and add meaning to their experiences with SRL strategy use (see Appendix E).

Data Confidentiality

Efforts were implemented to insure the privacy of study participations and their responses to interview questions. At the start of each interview, participants were reminded of the confidentiality measures extending to both the online survey and the follow-up interview. Electronic interview notes were kept in a password-protected storage area and were erased after the conclusion of the study.

Data Analysis

To investigate each of the four research questions, data from the online survey instrument were analyzed via SPSS statistical software. In addition, responses from a small sample of follow-up interviews were recorded, transcribed, and coded.

Quantitative. Data analysis began by testing assumptions regarding normality of the data. For a visual indication, a quantile-quantile (q-q) plot was utilized to determine if a common distribution existed. Skewness and kurtosis were also analyzed with the goal of ranges of ± 2 and ± 7 respectively. Additionally, assumptions of normality were tested via Shapiro-Wilk to further analyze the distribution of differences (Thorndike & Thorndike-Christ, 2009). Linear regression analysis was used to investigate the relationship between high levels of openness, conscientiousness, extraversion, agreeableness, and neuroticism, overall OSLQ scores, and the use of OSLQ subscales: goal setting, environmental structuring, task strategy, time management, help seeking, and self-evaluation (RQ 1 & RQ2). Regression analysis was also used to explore

the relationship between personality traits, the number of online courses taken, overall OSLQ scores, and the use of goal setting, environmental structuring, task strategy, time management, help seeking, and self-evaluation SRL strategies (RQ3).

Qualitative. Table 3 presents a blueprint of interview questions and related subscales.

Table 3						
<i>Interview Question Blueprint and Related OSLQ Subscales</i>						
<u>Interview Question</u>	<u>OSLQ Subscales</u>					
	<u>GS</u>	<u>ES</u>	<u>TS</u>	<u>TM</u>	<u>HS</u>	<u>SE</u>
Question 1: When you think about your ability to complete your coursework on time, what are some of the issues you foresee that might prevent you from doing so?				X	X	X
Question 2: Can you walk me through your typical process of organizing and planning how you will complete coursework when you first begin a course?	X	X	X			
Question 3: Some people feel that their personality is better suited for face-to-face instruction rather than online, or vice versa. Do you believe you are naturally more suited to one format or the other? If so, which one and why?			X	X	X	X
Question 4: The online survey asked you to think in general terms about your use of various learning strategies. In completing the survey, did you answer within the context of how you behave in a face-to-face or online course?	This question does not relate directly to a subscale. It was included to help provide context to interviewees' responses					

Table 3 (Continued)

<u>Interview Question</u>	<u>OSLQ Subscales</u>					
	<u>GS</u>	<u>ES</u>	<u>TS</u>	<u>TM</u>	<u>HS</u>	<u>SE</u>
Question 5: If you've taken both face-to-face and online courses, how do you feel that your study and/or organizational strategies differ within each setting?	X	X	X			

The purpose of RQ4 was to explore similarities and differences between how learners from each of the five personality trait classifications described their use of SRL strategies. Interview questions were developed around the six OSLQ subscales: goal setting (GS), environmental structuring (ES), task strategy (TS), time management (TM), help seeking (HS), and self-evaluation (SE).

Responses from each of the 15 follow-up interviews were summarized in a Daily Interpretive Analysis (DIA). The purpose of DIA was two-fold: 1) protect the fragility of data that becomes increasingly more difficult to reconstruct as time passes, and 2) enhance the interview process by forcing the interviewer to actively reflect on each interview, thus allowing opportunities for process or question revisions. Hand-written interview notes were reviewed and a summary was transcribed into digital format at the end of each interview or as soon thereafter as possible (not to exceed 24 hours after the interview). Most interview summaries included one or more direct quotes that the researcher notated during the interview and wanted to preserve, verbatim, for use within the results and discussion portions of the study.

As described by Seidman (2013), at the root of the interview process is the desire to better understand the lived experience of other people. It is a meaning-making process by which the interviewer allows participants to describe what is meaningful to them in their own words. As

such, the semi-structured interviews associated with this study allowed participants to further describe and add meaning to their experiences with the use of self-regulated learning strategies. This interview approach also allowed the researcher to clarify responses or probe more deeply when needed (Hays & Singh, 2011; Gill, Stewart, Treasure, & Chadwick, 2008). Thus, the interview approach utilized for this study provided more flexibility than a structured approach, was more organized than an unstructured approach, and allowed for the discovery of information that was important to participants but may not have previously been deemed relevant by the researcher (Gill, et al., 2008).

Survey data collected for this study were subjected to a variety of statistical tests to determine normality, means, standard deviations, relatedness between variables, and the potential use of one or more independent variables to predict the dependent variable. Results indicated that the sample was normally distributed with equal variances between personality trait groups. Moreover, personality trait was shown to be a statistically significant predictor of SRL strategy use. Given that this study sought to explore the predictive value of five unique personality traits in relation to SRL strategy use, initial concerns related to multicollinearity were eliminated based on very low VIF values ($VIF < 2$). In addition, comments from participant interviews were used to add to the researcher's understanding of each participant's unique experiences with the use of SRL strategies. Results from these analyses are reported below.

CHAPTER III

RESULTS

This mixed methods study investigated the relationship between the Big Five personality traits and the use of SRL strategies. The results demonstrated that personality trait classification does have an impact on the deployment of various SRL strategies. This study also demonstrated that the number of online courses taken, coupled with specific personality traits, affected the use of SRL strategies.

Participants

A total of 452 survey responses were received. The age range item received 362 responses and indicated that 83.1% of respondents were 45 years of age or younger ($n = 345$), with 16.9% reporting as 46 years of age or older ($n = 61$). The gender item received 368 responses, with 32.3% reporting as male ($n = 119$) and 67.7% reporting as female ($n = 249$). The college item received 365 responses, with the greatest number of participants reporting affiliation with the College of Education (44.9%, $n = 164$) and the fewest number of participants reporting affiliation with the College of Arts & Letters (8.5%, $n = 31$). The level item received 366 responses that indicated that the number of master's level participants was more than 10 times the number of doctoral level participants ($n = 207$ and $n = 19$, respectively), with graduate certificate participants representing 38.3% of the total responses ($n = 140$). The online courses taken item received 361 total responses, with 36.0% ($n = 130$) indicating 1-2 online courses taken, 21.9% ($n = 79$) indicating 3-5 online courses taken, and 42.1% ($n = 152$) indicating 6 or more online courses taken (see Table 4). Of the total received, three participants from the openness category, three from the agreeableness category, three from the extraversion category, four from the conscientiousness category, and two from the neuroticism category agreed to

participate in a follow-up interview., for a total of 15 interviewees.

Table 4

Participants Demographics

<u>Survey Item</u>	<u>Frequency of Responses</u>
Age	
18-25	58
26-35	139
36-45	104
46-55	44
56-65	14
Over 65	3
Non-Response	90
Gender	
Male	119
Female	249
Non-Response	84
College	
Arts & Letters	31
Business	33
Education	164
Engineering & Technology	38
Health Sciences	53
Sciences	46
Non-Response	87
Level	
Masters	207
Doctoral	19
Graduate Certificate	140
Non-Response	86
Online Courses Taken	
1 Course	78
2 Courses	52
3 Courses	28
4 Courses	26
5 Courses	25
6 or more Courses	152
Non-Response	91

Descriptive Analysis

At the onset of the descriptive analysis process, a Shapiro-Wilk test was used to test for normality on the dependent variable OSLQ score. Based on a $p = .457$ and a visual inspection of the associate histogram and Q-Q Plot, the null hypothesis was not rejected, and the data were assumed to be normally distributed. As presented in Table 5, mean scores for the 24-item OSLQ ranged from 2.97 to 4.15, with standard deviations between .706 and .969. Among the six OSLQ subscales, environmental structuring and goal setting strategies were used most frequently by participants (means of 4.15 and 4.07, respectively), while task strategies and self-evaluation were evidenced the least (means of 2.97 and 3.11, respectively). Test for normality indicated that OSLQ data were normally distributed with a $p = .457$.

Table 5

Means and Standard Deviations of Online Strategies for Learning Questionnaire

<u>Subscales</u>	<u>Mean</u>	<u>SD</u>
Goal setting	4.07	.706
Environmental structuring	4.15	.734
Task strategies	2.97	.806
Time management	3.15	.969
Help seeking	3.33	.864
Self-evaluation	3.11	.903

Note: Minimum and maximum scores are based on 5-point Likert scale (1=Disagree strongly and 5=Agree Strongly).

As shown in Table 6, means scores for the 44-item Big Five Inventory ranged from 22.7 to 37.4, with standard deviations between 4.97 and 7.50. Among the five personality traits measured by the instrument, openness was exhibited most frequently by participants (mean = 37.4), while neuroticism was evidenced the least (mean = 22.7).

Table 6

Means and Standard Deviations of Big Five Personality Inventory

<u>Trait</u>	<u>Mean</u>	<u>SD</u>
Extraversion	26.8	7.50
Agreeableness	35.4	5.35
Conscientiousness	34.3	4.97
Neuroticism	22.7	5.93
Openness	37.4	5.76

Note: Minimum and maximum scores are based on 5-point Likert scale (1=Disagree strongly and 5=Agree Strongly).

Prior to regression analysis related to each research question, various assumptions were tested.

First, assumptions of linearity between OSLQ scores and personality traits were tested and returned a regression equation, $F(25,329) = 9.83$, $p = .000$, which indicated that personality trait predicted OSLQ scores significantly well. Next, the absence of multicollinearity was established based on Tolerances between .836 and .946 and VIF values between 1.057 and 1.196. Finally, a scatterplot showed normal variances and the assumption of homogeneity of variances was met.

RQ1: Do learners who exhibit higher levels of openness, conscientiousness, extraversion, or agreeableness score higher on SRL strategy use than those who exhibit lower levels?

Linear regression was used to examine the relationship between overall OSLQ score and each of the four personality traits related to RQ1. The results of the regression indicated that each of the four traits were significantly related to overall OSLQ score gains, although no more than 8% of the variability could be attributed to any particular trait. Openness explained just 1.6% of overall OSLQ score, $F(1, 333) = 5.295$, $p < .05$; Conscientiousness explained 7.8%, $F(1,333) = 28.103$, $p < .05$; Extraversion explained 3.8%, $F(1, 333) = 13.135$, $p < .05$; and Agreeableness explained 5%, $F(1, 333) = 17.708$, $p < .05$.

Further regression analysis was conducted to examine the relationship between individual OSLQ subscale scores and each of the four personality traits related to RQ1. As presented in Table 7, openness and conscientiousness explained 50% of the variance in goal setting, $F(5,3423) = 22.71, p < .05$. Openness and conscientiousness explained 20% of the variance in environmental structuring, $F(5,343) = 7.58, p < .05$. Agreeableness explained just 3% of the variance in task strategy, $F(5,341) = 2.05, p < .05$. Conscientiousness explained 5.5% of the variance in time management, $F(5,343) = 4.00, p < .05$. Extraversion and agreeableness explained approximately 24% of the variance in help seeking, $F(5,344) = 9.46, p < .05$. Finally, Extraversion explained 6.5% of the variance in self-evaluation, $F(5,337) = 4.65, p < .05$.

Table 7

Influence of Personality Trait on OSLQ Subscales

<u>Personality Trait</u>	<u>Subscale</u>	<u>P</u>	<u>R²</u>
Openness	Goal setting	.034	.249
Openness	Environmental structuring	.018	.100
Conscientiousness	Goal setting	.000	.249
Conscientiousness	Environmental structuring	.000	.100
Conscientiousness	Time management	.016	.055
Extraversion	Help seeking	.000	.121
Extraversion	Self-evaluation	.003	.065
Agreeableness	Task structuring	.018	.029
Agreeableness	Help seeking	.003	.121

RQ2: Do learners who exhibit higher levels of neuroticism score lower on SRL strategy use than those who exhibit lower levels?

Linear regression was used to examine the relationship between overall OSLQ score and the personality trait related to RQ2. Results of the regression indicated that neuroticism was a weak predictor of overall OSLQ score and explained less than 2% of the variance, $F(1,333) = 4.250$, $p < .05$. Further regression analysis was conducted to examine the relationship between individual OSLQ subscale scores and the personality trait related to RQ2. Neuroticism was shown to explain 12% of the variance in help seeking, $F(5,341) = 2.05$, $p < .05$.

RQ3: What is the relationship between personality traits, number of online courses taken, and use of SRL strategies, and number of online courses taken?

Regression analysis was conducted to examine the relationship between overall OSLQ score, Big Five personality traits, and the number of online courses taken. Results indicated that personality trait and the number of online courses taken was not a significant predictor of overall OSLQ score, $F(2,339) = 1.00$, $p = .368$, $R^2 = .006$. However, further regression analysis of individual subscales showed a collective significant effect between personality traits, number of online courses taken, and one or more subscales.

As shown in Table 8, the combination of high conscientiousness and number of online courses taken was the strongest predictor of goal setting, $F(2,340) = 48.71$, $p < .05$, accounting for 22% of the variance. Conscientiousness and number of online courses taken was the strongest contributor to environmental structuring, $F(2,340) = 13.22$, $p < .05$, although the combined effect explained only 7% of the variance. Although statistically significant, agreeableness and number of online courses taken explained less than 3% of task strategy, $F(2,340) = 4.53$, $p < .05$. Conscientiousness and number of online courses taken was also a significant predictor of time

management, $F(2,340) = 6.17$, $p < .05$, although the combined effect was weak at just under 4%.

Extraversion and number of online courses taken was the most significant predictor of help

seeking strategy use, $F(2,341) = 18.34$, $p < .05$, accounting for nearly 10% of the variance.

Finally, extraversion and number of online courses taken were shown to predict self-evaluation,

$F(2,334) = 6.75$, $p < .05$, but accounted for only 4% of the variance for that strategy.

Table 8

Combined Effect of Big Five Category and Number of Online Courses Taken on OSLQ Subscales

<u>Personality Category</u>	<u>p</u>	<u>R²</u>
Openness		
Goal Setting	.000	.047
Environmental Structuring	.022	.022
Conscientiousness		
Goal Setting	.000	.223
Environmental Structuring	.000	.072
Time Management	.002	.035
Help Seeking	.004	.031
Self-Evaluation	.032	.020
Extraversion		
Goal Setting	.000	.048
Help Seeking	.000	.097
Self-Evaluation	.001	.039
Agreeableness		
Goal Setting	.000	.079
Environmental Structuring	.004	.031
Task Strategies	.011	.026
Time Management	.022	.022
Help Seeking	.001	.037
Self-Evaluation	.035	.035

Table 8 (Continued)

<u>Personality Category</u>	<u>p</u>	<u>R²</u>
Neuroticism		
Goal Setting	.000	.072
Time Management	.020	.023

RQ4: How do learners of different personality trait categories describe their SRL strategy use?

Follow-up interviews were conducted to allow participants to further describe and add meaning to their experiences with the use of self-regulated learning strategies. Two to four respondents from each personality trait category were invited to participate in a follow-up interview. Table 9 provides specific score and classification information for each interviewee.

Table 9

Personality Trait Scoring and Classification for Interviewees

<u>Interviewee ID</u>	<u>Scores by personality trait</u>					<u>Classification</u>
	<u>OPEN</u>	<u>CON</u>	<u>EXT</u>	<u>AGR</u>	<u>NEU</u>	
A1	30	36	26	38	26	Agreeableness
A2	30	42	12	43	27	Agreeableness
A3	33	40	37	41	20	Agreeableness
C1	40	42	31	29	11	Conscientiousness
C2	31	33	25	32	27	Conscientiousness
C3	35	41	37	31	16	Conscientiousness
C4	37	40	21	33	23	Conscientiousness
E1	34	38	40	24	35	Extraversion

Table 9 (Continued)

<u>Interviewee ID</u>	<u>Scores by personality trait</u>					<u>Classification</u>
	<u>OPEN</u>	<u>CON</u>	<u>EXT</u>	<u>AGR</u>	<u>NEU</u>	
E2	36	37	39	31	16	Extraversion
E3	33	37	37	33	18	Extraversion
N1	30	25	25	28	36	Neuroticism
N2	31	32	24	27	34	Neuroticism
O1	46	42	32	45	9	Openness
O2	44	37	25	42	19	Openness
O3	48	38	26	33	28	Openness

Interview questions were developed to gain deeper insight into learners' use of SRL strategy subscales, as well as to identify broad themes or commonly-held behaviors related to SRL strategy use across personality types. No themes were determined or coded a priori, but rather emerged as responses were given, written down, transcribed, read, and reread by the researcher.

Validity. When conducting follow-up interviews, validity, trustworthiness, and credibility were facilitated through a variety of methods. 1) Interviews were conducted within a minimal time gap following completion of the online survey instrument to strengthened the confirmatory potential of the interview, 2) Semi-structured interview format allowed for "increased participant voice" to enhance the depth and fullness of the study; 3) Extensive note-taking during each interview and transcription within 24 hours of interview conclusion; 4) Procurement of thick descriptions via probing questions (Harris & Brown, 2010; Hays & Singh, 2011; Ryan & Bernard, 2003), and 5) Member checking via restating and clarifying individual responses with each interviewee at the conclusion of the interview.

Coding process. Interview data were analyzed using an open, axial, and selective coding process (Strauss & Corbin, 1998). No themes were predetermined, and the researcher held no bias as to the number, nature, or consequence of potential interview responses (Benaquisto, & Given, 2008). Labels were generated for chunks of data based on Ryan and Bernard's (2003) recommendations for discovering contextual themes in social science research, including word repetition, searching for missing information, identification of transitions and connectors, and cutting and sorting (the latter of which was modified to accommodate electronic storage of interview notes). During axial coding, the thoughts, opinions, and feelings expressed by interviewees were read several times with the purpose of gaining a more robust understanding of each interviewee's experiences with SRL strategies in his or her particular educational setting. During the selective coding phase, the categories and themes presented in Table 10 were established. These themes related to four core areas: 1) Barriers to successfully completing coursework—coded as Barriers, 2) Preparation at the start of a new course—coded as Preparation, 3) Suitability for delivery format—coded as Suitability, and 4) Strategy differences between face-to-face and online courses—coded as Strategies.

Table 10

Progression of Response Themes to Final Codes

<u>Response Themes</u>	<u>Preliminary Sorting</u>	<u>Final Codes</u>
Timing of due dates	Due dates	Barriers
Health problems	Health	Barriers
Family problems	Family	Barriers
Work full-time	Profession	Barriers
Motivational problems	Motivation	Barriers
Computer problems	Technology	Barriers
Lack of reliable Internet	Technology	Barriers
Boredom with lectures and classwork	Motivation	Barriers

Table 10 (Continued)

<u>Response Themes</u>	<u>Preliminary Sorting</u>	<u>Final Codes</u>
Too many distractions at home	Motivation	Barriers
Make outlines	Planning	Preparation
Make to-do lists	Planning	Preparation
Use a calendar	Planning	Preparation
Work ahead	Planning	Preparation
Be disciplined	Planning	Preparation
Set mini-goals	Planning	Preparation
Spread work evenly over semester	Planning	Preparation
Backfill calendar from due dates	Planning	Preparation
Visualize exactly what needs to be done	Planning	Preparation
Work in small, steady stages	Planning	Preparation
Use note cards	Planning	Preparation
Feel awkward in online classes	Personality	Suitability
Engage in online if there's a participation grade	Motivation	Suitability
Need well-structured assignments	Planning	Suitability
Need to see instructor to feel connected	Motivation	Suitability
Praise and positive feedback very important	Motivation	Suitability
Comfort level with using technology	Technology	Suitability
Gets information overload easily	Personality	Suitability
Personal nature (extrovert/introvert)	Planning	Suitability
Need immediate feedback from questions	Motivation	Suitability
Online more defined	Motivation	Suitability
Lack of nonverbal cues online	Technology	Suitability
Preferred personal learning style	Personality	Suitability
Self-motivated nature	Personality	Suitability
Highly values social interaction with others	Motivation	Suitability
Approach all work the same	Motivation	Strategy
Online calls for more focus	Motivation	Strategy

Table 10 (Continued)

<u>Response Themes</u>	<u>Preliminary Sorting</u>	<u>Final Codes</u>
More distractions in online classes	Motivation	Strategy
Look at big picture	Motivation	Strategy
Student responsibility greater in online classes	Motivation	Strategy
Online classes require more organization	Planning	Strategy

Barriers to Successfully Completing Coursework

Interviewees from each personality type cited very similar barriers to successfully completing coursework. Among them were work and family obligations that conflicted with coursework, competing deadlines when taking more than one course at a time, and an inability to properly prioritize all that needed to be done. One interviewee stated that “*Schoolwork tends to be the thing that gives when priorities conflict*” (Participant E2). Another interviewee noted lack of motivation as a barrier to completing coursework, stating that he “*loses motivation to continue with coursework if feedback on previous assignments isn’t timely*” (Participant E1). An additional obstacle identified by one interviewee was technical issues that could present a barrier to completion of coursework, stating that “*I live in a rural area, so my Internet connection is unreliable*” (Participant E1). Finally, health issues were identified as a potential barrier to successful completion of coursework. One interviewee stated that “*family health issues always spring up that take precedence over coursework*” (Participant O2), while another interviewee mentioned general medical issues as having a “*large impact on how much work I can get done*” (Participant C3). Not all interviewees considered barriers associated with conflicting obligations and the resulting time constraints as negative. As noted by one interviewee, “*pressure helps me get it done*” (Participant A1).

Preparation at the Start of a New Course

In response to questions related to preparation at the start of a new course, interviewees again responded quite similarly. In fact, 13 of the 15 interviewees indicated that their first step in preparation for a new course was to review the syllabus and add due dates to their calendars. Interviewees from several personality classifications described additional approaches to working with their personal calendars at the start of a new course. One interviewee stated that she “*uses highlighters to denote important dates and deadlines,*” (Participant C2). Another interviewee stated that she “*puts assignment due dates on a calendar that hangs on the frig so that I can see it often*” and added that she generally “*notes due dates as two or three days earlier than actually due*” (Participant A1).

Several other interviewees noted that they create specific, scheduled tasks for coursework due dates so that they can “*mark tasks off calendar as they are completed*” (Participant A2), “*write down daily tasks that need to be done to achieve assignment goals*” (Participant A3), or “*write tasks for each week and check them off when accomplished*” (Participant C3). One interviewee stated that he likes to “*record completed tasks on calendar...this forces me to look at the calendar each time something is finished to review progress or readjust if needed*” (Participant C1). This same interviewee stated that “*calendars and color-coding help me visualize what needs to be done*” (Participant C1). Several interviewees described additional strategies for planning at the start of a new course, including “*spreading work out evenly across the semester*” (Participant C4), “*working ahead on written assignments*” (Participant E1), and “*getting a sense of where heaviest times will be and figuring out a plan*” (Participant E2). Preferred approaches for tackling coursework were also mentioned during follow-up interviews. One approach was to “*set mini goals to tackle large projects a little at a time*” and “*even out work as much as possible*

so there isn't too little one day/week and way too much the next day/week" (Participant N1), and *"pick away at difficult or complex assignments"* (Participant O1). One interviewee explained her approach of using a calendar and creating subtasks, stating that she *"needs to see the big picture at first before breaking down into smaller chunks"* (Participant E3).

Suitability for Delivery Format

In response to questions related to interviewees' perceptions of their suitability for face-to-face or online courses, 60% felt they were better suited for face-to-face classes (n = 9), 33% felt they were better suited for online classes (n = 5), and 7% felt equally well suited for either delivery format (n = 1). Several of those expressing higher suitability for face-to-face courses cited social constructs associated with face-to-face versus online courses as a primary factor. One interviewee stated that *"face-to-face is easier for me in terms of attendance and focus"* (Participant A3). Another interviewee noted she *"likes to network, talk, and learn from other students...not as easy to do in online courses"* (Participant C1). Another interviewee stated that she *"gets a lot out of nonverbal communications that are often missing in online classes"* (Participant C2). *"Liking the interaction of talking to the professor live"* and *"the ability to stay after class to ask questions in the moment"* were also noted as social considerations that contributed to a preference for face-to-face courses (Participant C3). Likewise, another interviewee stated that she *"doesn't thrive in an asynchronous environment because she values the social aspect and comradery"* (Participant E2).

Motivation was also a factor in interviewees' identification of higher suitability for face-to-face classes. As noted by one interviewee, *"face-to-face is huge for me motivationally"* (Participant C4). Others expressed similar sentiments and noted that *"focus is much harder to maintain in online courses"* (Participant O1), *"I experience too many distractions when trying to*

work at home” (Participant C3), and *“motivation to persist is much easier for me in a face-to-face environment”* (Participant E2). A related factor, learner engagement, was also mentioned by one interviewee, who stated that *“it’s so easy to be unengaged in online courses...I might be on another browser looking at something else during a [web conferencing] session”* (Participant O1). Accountability was another factor that surfaced during follow-up interviews with those who expressed a higher suitability for face-to-face versus online courses. As noted by one interviewee, *“I need the accountability of weekly face-to-face classes”* (Participant E2). Another interviewee stated that *“online feels like there’s an artificialness that comes from not seeing or knowing your professor and classmates...you don’t feel the need to work as hard since you don’t really know others in the class”* (Participant O1).

Interviewees who reported a higher suitability for online rather than face-to-face courses cited several contributing factors, including convenience, personal learning style, and familiarity with the online format. As described by one interviewee, *“I feel comfortable reaching out to online instructors in a variety of ways, so I don’t feel like I miss any contact with them and it’s more convenient”* (Participant A1). Likewise, another interviewee noted that *“face-to-face classes were a waste of time...driving to class and listening to lectures that could be provided digitally”* (Participant E1). Further, one interviewee stated that she *“disliked having to be somewhere at a certain time for class”* (Participant A2). Personal learning style was also a contributing factor to perceptions of suitability for online classes, with one interviewee stating that she *“appreciates the chance to take more ownership over her own learning in the online format”* (Participant A3).

Another recurring theme among interview responses was related to familiarity with online learning versus face-to-face. Several of the participants noted that their perception of a

higher suitability for online courses could have been affected by the fact that they had taken mainly online courses, especially in their most recent program of study. As noted by one interviewee, *“I’ve taken mostly online at this school, so it’s what I’m used to and most comfortable with”* (Participant C2). Other interviewees had similar responses, indicating that they *“have not taken any face-to-face courses from their current school”* (Participant E1), and *“my undergraduate degree was done online, so it’s no big deal to me”* (Participant N1).

Strategy Differences Between Delivery Formats

In response to questions related to strategy differences between face-to-face and online courses, responses were fairly equal. Approximately half of the interviewees reported no difference in the way they approached online versus face-to-face courses, while the other half felt the opposite was true. Comments from those who reported no difference in strategy use or course preparation included *“I approach either format the same way”* (Participant C1), *“[I see] no strategy or organizational differences based on delivery method”* (Participant C2), and *“no different approach, but motivation to persist suffers in an online environment”* (Participant E2). One interviewee expressed the viewpoint that delivery method was irrelevant because she *“still wants to do good in both settings...it’s the need for praise, approval, and recognition of effort—regardless of delivery format—that drives me”* (Participant O2).

For those reporting different strategies or course preparation practices for online versus face-to-face courses, one interviewee stated *“I feel the need to be more focused, organized, and plan things out more for online courses...With face-to-face I often plan from week-to-week or two weeks in advance rather than the entire semester”* (Participant C3). Similarly, another interviewee noted that he must be *“a bit more diligent about reading and preparing for class...and I expect to have to work harder in online classes”* (Participant C4). Another

interviewee observed that differences in strategy and preparation are “*due to the structure of the course itself rather than to how I want to approach it.*” When asked by the interviewer to expand on this response, the interviewee stated “*the types of assignments in a class influence my approach...online has mostly papers while face-to-face has more tests, so my approach has to be different*” (Participant N2).

Descriptive analyses of demographics, personality trait, overall OSLQ score, and individual OSLQ subscale score provided a detailed representation of the relationship between the independent and dependent variables. Most notably, analysis confirmed the existence of a positive correlation between several personality traits and the use of SRL strategies. While less influential on overall OSLQ score, several demographic variables and personality trait categories were shown to be significantly related to one or more OSLQ subscales. Moreover, commentary ascertained via personal interviews allowed the researcher to build a deeper, more inclusive understanding of participants’ experiences with SRL strategies. The implications of these results are discussed below.

CHAPTER IV

DISCUSSION

The purpose of this study was to extend the body of research on the use the personality traits as a possible predictor of SRL strategy use. The study explored the relationship between five common personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) and six subscales of SRL strategies: goal setting, environmental structuring, task strategy, time management, help seeking, and self-evaluation. This chapter interprets the results of the study, reviews study limitations, and offers possibilities for future research.

Opportunities to enhance existing self-regulated learning strategies

Results supported the first hypothesis, in that learners classified within the four personality traits related to RQ1 did report more frequent use of SRL strategies and obtain higher overall OSLQ scores. In a broad sense, these results are in line with those reported by Tezci, et al. (2016) regarding more frequent SRL strategy use associated with positive lifestyle traits. Study results also confirmed those reported by Dörrenbächer and Perels (2016), Bidjerano and Dai (2007), and Ghyasi, Yazdani, and Farsani (2013), in that learners high in openness, conscientiousness, extraversion, and agreeableness were shown to be more skilled self-regulators as measured by strategy use scales. These findings are not surprising, given the various descriptors associated with each personality trait. Learners classified in the openness category are typically considered deep and complex, with a positive attitude toward learning challenges. These characteristics enable them to be flexible and rise to challenges as they occur. The conscientiousness trait is characterized by dependability and responsibility, which enables learners to plan, organize, and persist. Those in the extraversion category are thought to be energetic and enjoy interacting with others, which enables them to excel in class discussions and

group projects. Finally, characteristics associated with the agreeableness category include a spirit of cooperativeness and compliance, which enables learners to follow guidelines and respect due dates. Overall, the characteristics and behaviors associated with the personality traits addressed in RQ1 engender learners who are well-poised to employ a variety of SRL strategies. Responses during follow-up interviews lent strength to these findings, in that those classified high in openness, extraversion, agreeableness, and conscientiousness described frequent and varied use of SRL strategies. Commonly-cited strategies among all personality traits included syllabus review, noting due dates on a calendar, highlighting different assignment types or from different courses, creating to-do lists, spreading work evenly over course length, working ahead on written assignments, setting min-goals, and creating subtasks.

Regarding the six OSLQ subscales, results indicated that learners high in openness deployed goal setting and environmental structuring strategies more often than those lower in openness. Those high in conscientiousness used goal setting, environmental structuring, and time management more frequently than those lower in conscientiousness. Learners high in extraversion utilized help seeking and self-evaluation strategies more often than those lower in extraversion, while those high in agreeableness exhibited greater use of task structuring and help seeking than those lower in agreeableness. These associations are consistent with previous research that showed a positive relationship between various personality traits and commonly-deployed SRL strategies (Bidjerano & Dai, 2007; Dörrenbächer & Perels, 2016; Ghyasi, et al., 2013; Mirhashemi & Goodarzi, 2014). The confirmatory nature of the current findings related to more frequent use of SRL strategies based on high openness, extraversion, agreeableness, and conscientiousness with those previously reported have important implications for course designers and educators. Namely, these results provide a research-based foundation from which

to approach course development and teaching. That is, these findings highlight the fact that the majority of learners in any given course will likely fall into either the openness, conscientiousness, extraversion, or agreeableness personality trait categories. Although each learner is unique and individual differences exist, recognizing which strategies the majority of learners are likely to employ allows course designers and instructors to focus on ways to enhance these natural tendencies and foster more effective strategy use. For example, goal setting skills could be fostered with assignments that require learners to submit a plan of action for various stages of the activity. Likewise, time management strategies could be encouraged with assignments that are submitted and graded in phases so that learners cannot wait until the last minute to complete a project.

Responses during follow-up interviews confirmed several findings from the subscale analysis. Learners high in openness and conscientiousness reported utilizing a variety of strategies and behaviors related to goal setting, environmental structuring, and time management, such as creating to-do lists, subtasks, and scheduling times for schoolwork on their calendars. For some personality traits, however, interview comments lent little support to the statistical findings. This lack of confirmatory responses was particularly evident in the absence of interview responses related to help seeking strategies for those high in extraversion and agreeableness. Given that high scores in extraversion and agreeableness were shown to be significant predictors of the use of help seeking strategies, the fact that none of the interviewees in these two categories reported using typical help seeking strategies was quite surprising and raised additional questions. Was there confusion between the online survey and the interview questions related to help seeking strategy use? Did learners fail to accurately identify their actions as help seeking behaviors? Did interviewees feel comfortable acknowledging their help

seeking activities when completing the online survey but not when responding to interview questions? If so, why, and how might the issue be addressed in future interview protocols? These and other questions could form the basis for additional research aimed at gaining a more accurate picture of learners' help seeking strategy use.

Opportunities to develop new self-regulated learning strategies

Results supported the second hypothesis to some extent, in that learners classified high in neuroticism were shown to have lower overall OSLQ scores. However, the significance was very weak, with neuroticism accounting for less than 2% of the variance in overall OSLQ score.

A much stronger relationship was seen between high neuroticism and the use of help seeking strategies. This finding is not surprising and aligns with previous research indicating that those high in neuroticism are typically unconfident, self-critical, nervous, easily distracted from tasks, and vulnerable when coping with stress or life events (Bidjerano & Dai, 2007; Diseth, 2003; Kachman, 1987; Komarraju, et al., 2009; Omheni, et al., 2017), all of which can facilitate a need to seek help, guidance, or reassurance. The implications of this finding for course designers and educators are quite important; that is, they highlight the need to provide opportunities for learners to seek help through a variety of means and can serve to inform dimensions of the design and instructional process. For example, a course could be designed with a Frequently Asked Questions forum, weekly synchronous sessions to facilitate help seeking for all learners, or opportunities for instructor and peer feedback prior to final assignment submission. Moreover, design and instructional practices similar to those described in the previous section could benefit high neuroticism learners by allowing them opportunities to develop new SRL skills, such as goal setting and time management, which are not part of the typical neuroticism repertoire.

Purposeful inclusion of opportunities for knowledge, skill acquisition, and practice of new SRL skills through course materials or activities could greatly benefit high neuroticism learners.

Responses during follow-up interviews seemed to support the finding related to overall OSLQ score. In general, those high in neuroticism reported the use of fewer SRL strategies in response to related interview questions, particularly Question 2 (*Can you walk me through your typical process of organizing and planning how you will complete coursework when you first begin a course?*) and Question 3 (*Can you tell me about a time when you feel you were able to use study and/or organizational tactics to help meet an academic deadline?*). The fact that those high in neuroticism were unable to articulate an organizational plan or identify effective study tactics supports the findings related to lower overall OSLQ scores. Interestingly, interview responses failed to provide additional evidence related to more frequent use of help seeking strategies by those high in neuroticism. Considering the statistical results from the online surveys, one might reasonably expect those high in neuroticism to describe the use of a variety of help seeking activities, such as visiting an instructor during office hours, contacting the Help Desk, visiting an online website, posting questions in an online forum, forming a study group, and sending emails. However, neither these nor similar help seeking activities were reported during follow-up interviews, thus highlighting the potential disparity between survey and interview responses. In fact, the absence of interview comments related to the use of help seeking strategies was one of the most interesting facets of the study and raised a potential line of inquiry for future research. The fact that neither participant categorized as high in neuroticism mentioned any of these help-seeking strategies throughout the interview could mean that they do not typically use any. However, the desire to admit the need for help and then seek it out can be hampered by several variables. As noted by Mahasneh, Sowan, and Nassar (2012), learners are

often hesitant to seek help because of their desire for autonomy, concerns about social embarrassment, structure and presentation of the learning material, social climate of the learning environment, and the threat to their perceived level of competence or ability. As such, it is difficult to determine if those high in neuroticism from the current study actually use help seeking strategies but are uncomfortable discussing them (Chan, 2009). It may be possible to address this uncertainty in two ways for future studies: 1) conduct follow-up interviews with a larger pool of high neuroticism participants to see if similar response patterns emerge, and 2) include additional interview questions more directly aligned with and related to the use of help seeking strategies.

Personality, online experience, and self-regulated learning

Research suggests that strong and effective self-regulation in online learning environments is essential for better academic achievement and attainment of learning goals (Cohen & Baruth, 2017; Lynch & Dembo, 2004; King, et al., 2000; Puzziferro, 2008; Shih & Gamon, 2002). As such, the interplay between the types and frequency of strategy use and experience with online courses was a primary focus of the current study. Results failed to support the third hypothesis, in that no significant differences were noted in overall OSLQ score based on personality trait and the number of online courses taken. However, personality trait and number of online courses taken were significant predictors of the use of SRL strategies related to the six OSLQ subscales.

As their familiarity with the online environment increased, learners high in agreeableness made use of goal setting, environmental structuring, task strategy, time management, help seeking, and self-evaluation more frequently. The findings are informative, in that they provide additional data to further the line of inquiry related to the agreeableness personality trait and its

impact on the use of SRL strategies. As noted by Dörrenbächer and Perels (2016), previous research in this regard has yielded ambiguous conclusions, although research has indicated that agreeableness seems to be a positive factor for learning (Komarraju, Karau, Schmeck, & Avdic, 2011). The correlation between agreeableness and each of the six OSLQ subscales was evidenced to some extent in follow-up interviews, whereby all those in the agreeableness category described activities that could be associated with goal setting, environmental structuring, task strategies, and time management. However, none of these participants described behaviors that would typically be associated with help seeking or self-evaluation strategies.

Likewise, the combination of high conscientiousness and number of online courses taken increased the use frequency of all but task strategy. Responses in follow-up interviews supported this finding to some extent, in that goal setting, environmental structuring, and time management were described in interviews of those high in conscientiousness. High extraversion and number of online courses taken also indicated an increased likelihood of exhibiting three specific subscales: goal setting, help seeking, and self-evaluation. Again, personal interviews lent partial credence to these findings, in that those high in extraversion unanimously described activities associated with goal setting and self-evaluation, but none mentioned help seeking behaviors as a strategy they regularly employed. The absence of interview comments related to the use of help seeking strategies became a recurring theme throughout the study, even though survey results indicating frequent use of help seeking behaviors contradicted interview responses. Possible reasons for this disparity were discussed in the previous section and continue to be an area that may warrant further study.

Those high in openness and extraversion, coupled with number of online courses taken, deployed two to three SRL strategies more frequently. Personal interviews provided significant

support for these findings as they related to goal setting and time management. However, activities related to environmental structuring were seldom described by participants high in openness or extraversion. Most surprising was that those high in neuroticism reported more frequent use of goal setting and time management as they became more accustomed to online learning. This finding is particularly interesting because goal setting and time management are not strategies commonly deployed by those high in neuroticism, thus highlighting the potentially mitigating effect of familiarity and experience within the online environment on goal setting and time management utilization by those high in neuroticism.

These general findings related to personality trait and number of online courses taken were of keen interest to this author, in that they highlighted issues related to preparing learners for online courses. Given that the combination of each personality trait and the number of online courses taken was a significant predictor of increased SRL strategy use, it is incumbent upon schools to provide new online learners with a robust orientation. Rather than using orientations to simply provide cursory information about the school or program, they should be designed to introduce learners to the concepts of SRL and provide opportunities for skill acquisition and practice. Designing orientations in this manner would also allow learners to get their first online course ‘under their belt’ at the beginning of their program of study. Doing so leverages the potential for increased SRL strategy use as subsequent online courses are taken. These findings also have implications for the investment of university resources, in that schools may need to focus more of their design and instructional staff on SRL-specific remediation for online learners.

Learners' perspectives of self-regulated strategy use

Follow-up interviews provided a deep, rich source of information related to the ways in which learners use SRL strategies. Some interviewees were just beginning their coursework, others were finishing up. Some interviewees had taken only online classes, some only face-to-face, and others had participated in both formats. Interviewees included both masters and doctoral level students, some of which were local and some from areas across the country. Finally, interviewees were classified into one of five personality trait types. Although the participants were varied, their responses to most interview questions were surprisingly similar, which failed to support the fourth hypothesis that notable differences would exist.

Question 1 asked: *When you think about your ability to complete your coursework on time, what are some of the issues you foresee that might prevent you from doing so?* This question was most closely aligned to the time management, help seeking, and self-evaluation constructs. Interviewee responses were eventually coded into a category labeled 'barriers to successfully completing coursework' (Barriers). Little variation was voiced among different personality categories when responding to this question. All 15 interviewees noted some form of outside obligations (work, family, and friends) as a deterrent to successfully completing coursework, while about half mentioned issues related to schoolwork as a barrier. These comments are consistent with previous that indicated that time management was the most frequently-cited course completion barrier (Kauffman, 2015; Lim & Kim, 2002; Park & Choi, 2009; Waschull, 2005; Yukselturk & Bulut, 2007).

These findings have implications for two distinct groups: instructional designers and higher education administrators. Recognizing that interviewees unanimously cited barriers unrelated to academics, such as work deadlines, provides instructional designers with an avenue

to explore in terms of course assessments. Assignments could be crafted to include authentic, job-related activities that allow learners to meet some of their professional responsibilities through their coursework. For example, assignments in a teacher prep program could include the development of lesson plans, classroom management plans, or instructional materials that serve a dual purpose—provide a means for evaluation by the instructor and also be utilized in the learner’s actual classroom setting. Dual-purpose assignments such as this could eliminate some of the barriers related to completing coursework on time. Understanding that scholarly progress may be impeded by factors unrelated to academics could also inform the support services provided by various school departments. For example, schools could combine the efforts and resources of advising, financial aid, student support, and counseling services to better address learner needs that fall outside the scope of academics, such as barriers related to family, work, and personal health.

Question 2 asked: *Can you walk me through your typical process of organizing and planning how you will complete coursework when you first begin a course?* This question was most aligned to goal setting, environmental structuring, and task strategy. Interviewee responses to this question were eventually coded into a category labeled ‘preparation at the start of a new course’ (Preparation). Once again, all 15 interviewees noted very similar strategies and behaviors, including reviewing the syllabus and notating due dates on a calendar. Several respondents described somewhat detailed behaviors—such as highlighting, color coding, and using sticky notes—but those actions were variations on the general responses related to reviewing the syllabus and notating due dates. It was interesting to note that those high in conscientiousness and neuroticism provided the fewest number of responses to this question, with fewer details given per response. Based on the preceding discussion of findings related to

high neuroticism and previous research that focused on SRL strategy use of those high in neuroticism, the lack of responses to this question were not surprising (Bidjerano & Dai, 2007; Kokkinos, Kargiotidis, & Markos, 2015). However, based on the analysis of survey responses and previous research findings, those high in conscientiousness were expected to utilize more preparation-related strategies, such as goal setting, environmental structuring, and time management (Chamorro-Premuzic & Furnham, 2003; O'Connor & Paunonen, 2007; Waschull, 2005).

Question 3 asked: *Some people feel that their personality is better suited for face-to-face instruction rather than online, or vice versa. Do you believe you are naturally more suited to one format or the other? If so, which one and why?* This question was most aligned to task strategy, time management, help seeking, and self-evaluation. Interviewee responses to this question were eventually coded into a category labeled 'suitability for delivery format' (Suitability). Nearly twice as many learners indicated they felt better suited for face-to-face environments than online ($n = 9$ and $n = 5$, respectively), while one interviewee indicated equal suitability for both delivery formats. Comments to this interview question emphasized three areas related to the lack of suitability for online courses: social constructs, motivation, and accountability. Observations of the lack of social constructs were expressed in terms of missing or inadequate instructor and peer interactions, as well as absence of nonverbal cues. These findings are consistent with previous research that suggested each of these factors wielded a negative impact on learner perceptions of and satisfaction with online courses (Bambara, Harbour, Davies, & Athye, 2009; El Mansour & Mupinga, 2007; Jaggars, 2014). To combat the lack of social constructs within an online environment, instructors could include opportunities for synchronous class interactions via live sessions held on a weekly/bi-weekly basis or as part of mid-term/final examination prep.

Perceptions of lack of motivation were expressed in terms missing or inadequate opportunities for quality feedback and class interactions. These comments are consistent with those garnered in previous studies related to motivation and engagement in online environments, which found that the lack of motivation often led to interrupted engagement, negative emotions, and lower course satisfaction (Artino, 2008; Cho & Heron, 2015; Cho & Shen, 2013; Kauffman, 2015). Responses during follow-up interviews were also consistent with Kim and Hodges' (2012) assertion that face-to-face interactions designed to promote positive emotions may be much more difficult to replicate within an online environment. Lack of motivation within the online environment is an area in which the course designer or instructor has several opportunities to help increase learner motivation and engagement. One suggestion would be to provide content and activities in a variety of formats, including videos, branching scenarios, and game-based learning. Feedback could also be delivered via audio or video to enhance interest and learner engagement. Finally, assessments designed to mimic authentic, job-related activities would provide numerous benefits: 1) allow learners to meet some of their professional responsibilities while completing coursework, thus eliminating some of the barriers discussed previously, 2) increase motivation and engagement, 3) positively impact learner autonomy and metacognition, 4) prepare learners for professional employment or improved practice, and 5) facilitate the development of new literacies (Herrington, Reeves, & Oliver, 2006; Palmer, 2004; Swaffield, 2011; Villarroel, Bloxham, Bruna, Bruna, & Herrera-Seda, 2018; Wiggins, 1990).

Lack of accountability was expressed in terms of missing or inadequate pressure from the instructor. Learners admitted to feeling a greater sense of accountability and a heightened desire to do well when they were required to physically attend class and see their instructor and classmates in person. These comments are consistent with previous studies that highlighted some

advantages and challenges of online learning, specifically with learners acknowledging the fact that without an instructor physically present to provide pace, order, and conversational cues, accountability waned (Driscoll, Jicha, Hunt, Tichavsky, & Thompson, 2012; Sapp & Simon, 2005; Tichavsky, Hunt, Driscoll, & Jicha, 2015). To help combat the lack of accountability felt by online learners, various strategies could be incorporated into the design and instructional processes. Most effective among these strategies are 1) increased learner choice related to learning materials and activities, 2) opportunities for social networking, 3) inclusion of media-rich materials, 4) instructor scaffolding through modeling and timely feedback, 5) student-led discussion forums, 6) peer review of assignments, and 7) group projects with assigned roles and responsibilities (Ardi, 2017; Hu & Zhang, 2017; Lee, 2016; Reinders, 2018).

Question 4 asked (no subscales): *The online survey asked you to think in general terms about your use of various learning strategies. In completing the survey, did you answer within the context of how you behave in a face-to-face or online course?* This question was designed to provide clarity in terms of which delivery format the learner was describing when answering questions. This information helped to paint a fuller picture of each learner by providing a basis from which to consider survey and interview responses. Responses were even for those referencing face-to-face and those referencing online course ($n = 6$ for both), with three interviewees stating that they were referencing hybrid courses. One consideration for use of this or a similar question in the future is to provide an operational definition for each delivery method, as not everyone holds the same understanding of face-to-face, online, and hybrid formats. The potential for conflicting definitions related to delivery format surfaced during follow-up interviews, whereby learners who indicated that they were answering for a face-to-face course went on to describe a hybrid experience that utilized web conferencing but had no in-

person sessions. Likewise, some interviewees noted that they answered with an online course in mind, while what they later described was more consistent with a hybrid model. Face-to-face could be defined as an on-campus class with no online components or requirements. Online could be defined as a class with no synchronous sessions of any sort; Hybrid could be defined as a class with both on-campus and online components, or an online class with required synchronous sessions designed to mimic face-to-face interactions. Regardless of how future researchers decide to conceptualize delivery format, those operational definitions must be provided at the start of a study, so that all participants have the same understanding of subsequent questions related to delivery format.

Question 5 asked: *If you've taken both face-to-face and online courses, how do you feel that your study and/or organizational strategies differ within each setting?* This question was most aligned to goal setting, environmental structuring, and task strategy. Interviewee responses were eventually coded into a category labeled 'Strategy differences between face-to-face and online courses' (Strategy). I originally hypothesized that due to the unique nature of the online environment, conversations with online learners would reflect strategy adaptations that were not deployed within a traditional classroom environment. Responses to this question provided moderate evidence to support the hypothesis, with approximately half of the interviewees reporting no difference in the way they approached online versus face-to-face courses, while the other half felt the opposite was true. The main areas in which strategy differences were voiced were related to developing autonomy and maintaining motivation throughout an online course. Respondents acknowledged the need to assume more ownership and personal responsibility for keeping themselves motivated and engaged in online courses. These findings are consistent with those from previous research indicating that success in online settings is often contingent upon

learner autonomy and active engagement (Barak, et al., 2016; Broadbent & Poon, 2015; Hew, 2016; Lee, Pate, & Cozart, 2015; Whipp & Chiarelli, 2004). Strategies described by interviewees to facilitate increased ownership and personal responsibility included stricter adherence to suggested course pacing/scheduling, more frequent interaction with course materials, acknowledgement that no one else would be available to keep them on track, self-imposed isolation while completing coursework, and utilization of a variety of web-based tools. This learner mindset was consistent with previous findings indicating that online students sought personal ownership and better control of their learning environments by acting as knowledge developers, socializers, and decision makers (Kreber, 2005; Rahimi, van den Berg, & Veen, 2015).

Moreover, Kemmer (2011) asserted that recognition of the need to take more responsibility for learning and increased requirements for independent study are paramount for successful online learning. This recognition was evidenced in comments from several interview participants, in that they acknowledged the fact that they would need to organize themselves, keep themselves focused, take more personal ownership, persist by own efforts, and plan things out themselves (Participants C3, C4, E2, A1, A2, 2018).

Implications for Instructional Design

The findings from this study are valuable, in that they provide educators and instructional designers another avenue for understanding the ways in which a learner's innate personality traits can affect the teaching and learning process. Understanding more about the interplay between personality and the use of SRL strategies can enable educators and developers to tailor their course design, instructional methods, learning objects, and assessments based on the dominant personality traits of their learners. For example, a learning environment characterized

by novelty, flexibility, and deep learning experiences would likely appeal to those high in openness (Bakker, Vergel, & Kuntze, 2015; Chamorro-Premuzic & Furnham, 2009; Keller, et al., 2013; Komarraju, et al., 2009; Patrick, 2011). In contrast, those lower in openness would likely benefit more from an environment that promotes familiar academic experiences and hypothetical–deductive ways of thinking, and rewards highly traditional forms of knowledge and skill acquisition (Cohen, et al., 2017; Constantinos, et al., 2015; Keller, et al., 2013). Being cognizant of a learner’s dominant personality traits can help determine the types of environments that will either ‘engage and excite’ or ‘frighten and frustrate.’ How, then, does one determine the best, most time-effective means to assess personality type, provide learners with the support necessary to develop new SRL skills or build upon existing ones, and create learning environments that facilitate growth and success for all learners?

Existing technologies can be leveraged to quickly assess personality type and provide resources to enhance and develop SRL strategies skills. The Big Five personality assessment is available in both digital and paper-based formats, with scoring provided so that those who complete it can receive an immediate assessment. Armed with this information, instructional designers and educators could take advantage of opportunities to present, scaffold, and support specific learner needs related to personality traits. Likewise, learner recognition of their own personality tendencies could help facilitate a greater sense of responsibility towards the SRL process by enabling learners to recognize their strengths and weaknesses (Bol & Garner, 2011).

Online resources and strategies designed to gauge SRL strategy use can themselves become an impetus for skill development or improvement. Online reflective journals and discussion forums can be designed to help learners carefully consider the learning process by comparing planned learning actions with those that occurred. These comparisons can lead to a

better understanding of what was effective and what was not, thus helping learners improve existing SRL skills or develop new ones (Panadero, Klug, & Järvelä, 2016). This reactivity—changes that occur as learners increase awareness of various aspects of their behavior—is a crucial component of the self-regulation process (Boekaerts, 2011; Efklides, 2011; Winne, et al., 1998; Zimmerman, 2002). Computer-based tutoring and scaffolding also offer an effective means to provide learners with prompts and tools needed to perform various tasks, which serve to increase metacognitive awareness during the learning process (Greene & Azevedo, 2010; Winne, et al., 1998; Winne & Perry, 2000). Another implication for course designers and instructors is related to collaborative online groups. Evidence suggests that typical student groups engage in various regulatory activities that benefit the entire group (Boekaerts & Corno, 2005; Grau, 2018; Hadwin, Järvelä, & Miller, 2011; Järvelä, 2015). As such, developing a variety of group activities and assignments can positively impact the collective SRL skills among group members (Grau, 2018; Grau & Whitebread, 2012; Iiskala, Vauras, & Lehtinen, 2004; Schoor, Narciss, & Körndle, 2015).

Limitations

Sample size was a concern, in that the small response rate and limited number of participant interviews failed to provide maximum opportunities to hear participant voices within the particular context under examination (Hays, et al., 2011), thus hindering the ability to confidently generalize findings to an outside population. Moreover, there are universal issues related to the use of self-report measures. In completing the Big Five Inventory and the OSLQ, participants were asked to report what they believed to be true about themselves. The accuracy of these self-reports could be called into question, particularly when asked about exhibiting actions or traits that may be construed as negative (Chan, 2009). The manner in which the surveys were

presented could also impact generalizability of study findings. As questions from both measures were combined into one survey instrument, there was an underlying assumption that participants understood that one set of questions related to habits and patterns that could be considered behavioral traits, while the other set of questions related to specific actions or steps taken to deal with academic tasks or challenges. Finally, the fact that interview participants were provided only a brief opportunity to consider their responses and make revisions raises a valid concern regarding trustworthiness and credibility. Member checking was done at the conclusion of each interview via a recap of responses by the interviewer, but a second phase of member checking via transcripts sent to interview participants was not performed.

Future Research

The current study sheds light on the relationship between the use of various SRL strategies and two important learner-centric factors: 1) unique personality traits, and 2) previous experience within the online environment. Although previous experience with online learning may be a fixed factor, personality is not. Acknowledging that learners are capable of thinking and acting in ways that fall outside their dominant personality style provides an interesting avenue for future research related to new SRL skill acquisition. It is important to explore and better understand how under-deployed or ineffective SRL strategies can be cultivated and improved, as well as how to develop missing strategies and skills in all learners. To that end, future research should focus on the continued pursuit of a full and detailed picture of each learner—particularly as it relates to nonacademic characteristics such as personality type and dominant behaviors. Doing so could provide needed insight to allow learners to better understand themselves. Likewise, educators armed with knowledge related to who their learners are—

particularly from a personality perspective—could better develop and facilitate individualized student training related to more effective use of SRL strategies (Illovsy, 2010).

Replicating the current study with students from multiple academic levels, such as undergraduate or high school, could combat one of the potential limitations, thus allowing for broader generalization of findings. Finally, future research aimed at painting a deeper, more robust picture of learner experiences with the use of SRL strategies could be accomplished through interviewing a larger number of participants belonging to each personality category. Including additional interview questions designed to elicit fuller, more descriptive explanations of students' experiences with SRL strategies might also broaden our understanding of the interplay between personality traits and strategy use.

Conclusion

Developing a better understanding of the relationship between common personality traits and the use of SRL strategies has implications for instructional designers, educators, and school administrators. In fact, determining whether various personality traits are indicative of more frequent deployment of one or more SRL strategies could impact how students are taught. To that end, this study has indicated that a propensity towards a particular personality trait can provide a basis to inform the course design, instruction, or support for graduate students. Furthermore, the study indicated that as the number of online courses taken increases, various strategies seem to be employed more frequently. Clarity regarding the relationship between these factors could aid in the development of more effective means by which graduate students are evaluated, oriented, and remediated during their academic careers.

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APPENDIX A

NOTIFICATION OLD DOMINION UNIVERSITY

This notification text will display when students first visit the online survey page in Survey Monkey. Participants may review this notification text at their convenience whenever they return to the online survey page or they may download a full-text PDF version if desired.

Project Title

An Examination of Personality Dimensions as a Predictor of the use of
Self-Regulated Learning Strategies

Introduction

You are being asked to participate in a research study that will explore the correlations between common personality dimensions and the use of self-regulated learning strategies. You are being asked to participate in this study because you are currently enrolled in one or more courses during the Spring 2018 semester. The purposes of this form are to:

1. Provide you with information that may affect your decision whether to AGREE or DISAGREE to the use of your data collected during your participation in this study.
2. Record the consent of those who AGREE to allow the researchers to use and analyze the data collected in this study.

Researchers

Responsible Principal Investigator

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Assistant Professor

Department of STEM Education and Professional Studies

Darden College of Education

Old Dominion University

Investigator

Jacqueline L. Bruso

Doctoral Candidate

Department of STEM Education and Professional Studies

Darden College of Education

Old Dominion University

Description of Research Study

In this correlational study, we propose to investigate the interrelatedness between common personality dimensions and the use of several self-regulated learning strategies, such as time management, task organization, and help-seeking. The purpose of the study is to gain a better understanding of the possible relationship between personality and self-regulated strategy use. If you agree to allow the researchers to collect and use your data in this study, you join a broader investigation to extend knowledge about how inherent personality traits may influence the selection and effective use of self-regulated learning strategies. Your participation in this study involves considering your study habits in order to rate your use of various self-regulation

strategies, reflecting on your attitudes and behaviors in order to identify common personality tendencies, and completing a 73 item survey, which includes basic demographic information about you. You will also have the opportunity to complete an anonymous feedback questionnaire at the conclusion of this study. If you choose to AGREE to participating and allowing us to collect and use your data, your participation will involve approximately 15-20 minutes to complete the online survey. The survey will be available for a period of 15 days, and you will be asked to complete it by the conclusion of the 15- day period.

Exclusionary Criteria

You are eligible to participate as long as you remain enrolled in one or more courses during the Spring 2018 semester.

Risks and Benefits

There is little to no risk involved in your participation in this study. No personally identifiable information will be collected via the survey instruments. Your participation will remain anonymous and your identity will not be known to the researchers.

Costs and Payments

We want your decision about collecting and using your information in this study to be absolutely voluntary. Participants will be offered the chance to enter into a random drawing to win one of ten \$5 Amazon gift cards. Participants who wish to enter the drawing will be asked to provide their email address upon completion of the survey. Winners will be notified via email within 30 days of the survey closing date.

New Information

If we find new information during this study that would reasonably change your decision about participating, we will inform you of that information and provide you the opportunity to withdraw your participation.

Confidentiality

All information obtained about you in this study is strictly confidential unless disclosure is required by law. The results of this study may be used in reports, presentations and publications, but we will not identify you.

Withdrawal Privilege

It is OK for you to DISAGREE to us collecting and using your data for this study. Even if you AGREE now, you are free to DISAGREE later, and withdraw your data from inclusion in this study at any time. Your decision will not affect your relationship with Old Dominion University or your course instructor.

Questions

If you choose to AGREE, then your consent in this document does not waive any of your legal rights. However, in the event of harm arising from this study, neither Old Dominion University nor the researchers are able to give you any money, insurance coverage, free medical care, or any other compensation for such injury. In the event that you suffer injury as a result of participation in any research project, you may contact Dr. Jill Stefaniak at 757.683.6696, or Dr. Ed Gomez, Chair of the Darden College of Education Human Subjects Review Committee, Old Dominion University, at egomez@odu.edu, who will be glad to review the matter with you.

Voluntary Consent

By selecting "I AGREE" below, you are saying several things. You are saying that you have read this form or have had it read to you, that you are satisfied that you understand this form, the research study, and its risks and benefits. The researchers should have answered any questions you may have had about the research. If you have any questions later on, then the researchers should be able to answer them:

Jacqueline Bruso 757-323-9608

Dr. Jill Stefaniak 757-683-6696

If at any time you feel pressured to participate, or if you have any questions about your rights or this form, you should contact Dr. Ed Gomez, Chair of the Darden College of Education Human Subjects Review Committee, Old Dominion University, at egomez@odu.edu.

If you are 18 years of age or older, understand the statements above, and freely consent to participate in this study, please click the "I AGREE" button below.

If you are not at least 18 years of age, or choose not to participate in this study, you may click the "I DISAGREE" button below.

APPENDIX B
DEMOGRAPHIC ITEMS

Age range

18-25
26-35
36-45
46-55
56-65
Over 65

Gender

Male
Female

College of enrollment

Arts & Letters
Business
Education
Engineering & Technology
Health Sciences
Sciences

Educational level

Masters student
Doctoral student
Graduate certificate student

Approximate number of online courses taken (including current semester courses):

1
2
3
4
5
6 or more

APPENDIX C

BIG FIVE INVENTORY (BFI) AND SCORING

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

Disagree strongly 1	Disagree a little 2	Neither agree nor disagree 3	Agree a little 4	Agree strongly 5
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I see Myself as Someone Who...

- | | |
|---|--|
| <p>___ 1. Is talkative</p> <p>___ 2. Tends to find fault with others</p> <p>___ 3. Does a thorough job</p> <p>___ 4. Is depressed, blue</p> <p>___ 5. Is original, comes up with new ideas</p> <p>___ 6. Is reserved</p> <p>___ 7. Is helpful and unselfish with others</p> <p>___ 8. Can be somewhat careless</p> <p>___ 9. Is relaxed, handles stress well</p> <p>___ 10. Is curious about many different things</p> <p>___ 11. Is full of energy</p> <p>___ 12. Starts quarrels with others</p> <p>___ 13. Is a reliable worker</p> <p>___ 14. Can be tense</p> <p>___ 15. Is ingenious, a deep thinker</p> <p>___ 16. Generates a lot of enthusiasm</p> <p>___ 17. Has a forgiving nature</p> <p>___ 18. Tends to be disorganized</p> <p>___ 19. Worries a lot</p> <p>___ 20. Has an active imagination</p> <p>___ 21. Tends to be quiet</p> <p>___ 22. Is generally trusting</p> | <p>___ 23. Tends to be lazy</p> <p>___ 24. Is emotionally stable, not easily upset</p> <p>___ 25. Is inventive</p> <p>___ 26. Has an assertive personality</p> <p>___ 27. Can be cold and aloof</p> <p>___ 28. Perseveres until the task is finished</p> <p>___ 29. Can be moody</p> <p>___ 30. Values artistic, aesthetic experiences</p> <p>___ 31. Is sometimes shy, inhibited</p> <p>___ 32. Is considerate and kind to almost everyone</p> <p>___ 33. Does things efficiently</p> <p>___ 34. Remains calm in tense situations</p> <p>___ 35. Prefers work that is routine</p> <p>___ 36. Is outgoing, sociable</p> <p>___ 37. Is sometimes rude to others</p> <p>___ 38. Makes plans and follows through with them</p> <p>___ 39. Gets nervous easily</p> <p>___ 40. Likes to reflect, play with ideas</p> <p>___ 41. Has few artistic interests</p> <p>___ 42. Likes to cooperate with others</p> <p>___ 43. Is easily distracted</p> <p>___ 44. Is sophisticated in art, music, or literature</p> |
|---|--|

Please check: Did you write a number in front of each statement?

BFI scale scoring (“R” denotes reverse-scored items):

Extraversion: 1, 6R, 11, 16, 21R, 26, 31R, 36

Agreeableness: 2R, 7, 12R, 17, 22, 27R, 32, 37R, 42

Conscientiousness: 3, 8R, 13, 18R, 23R, 28, 33, 38, 43R

Neuroticism: 4, 9R, 14, 19, 24R, 29, 34R, 39

Openness: 5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44

APPENDIX D

ONLINE SELF-REGULATED LEARNING QUESTIONNAIRE

Item	Subscale
1. I set standards for my assignments in online courses.	Goal Setting
2. I set short-term (daily or weekly) goals as well as long-term goals (monthly or for the semester).	
3. I keep a high standard for my learning in my online courses.	
4. I set goals to help me manage studying time for my online courses.	
5. I don't compromise the quality of my work because it is online.	
6. I choose the location where I study to avoid too much distraction.	Environment Structuring
7. I find a comfortable place to study.	
8. I know where I can study most efficiently for online courses.	
9. I choose a time with few distractions for studying for my online courses.	
10. I try to take more thorough notes for my online courses because notes are even more important for learning online than in a regular classroom.	Task Strategies
11. I read aloud instructional materials posted online to fight against distractions.	
12. I prepare my questions before joining in the chat room and discussion.	
13. I work extra problems in my online courses in addition to the assigned ones to master the course content.	
14. I allocate extra studying time for my online courses because I know it is time-demanding.	Time Management
15. I try to schedule the same time every day or every week to study for my online courses, and I observe the schedule.	
16. Although we don't have to attend daily classes, I still try to distribute my studying time evenly across days.	
17. I find someone who is knowledgeable in course content so that I can consult with him or her when I need help.	Help Seeking
18. I share my problems with my classmates online so we know what we are struggling with and how to solve our problems.	
19. If needed, I try to meet my classmates face-to-face.	
20. I am persistent in getting help from the instructor through e-mail.	Self Evaluation
21. I summarize my learning in online courses to examine my understanding of what I have learned.	
22. I ask myself a lot of questions about the course material when studying for an online course.	
23. I communicate with my classmates to find out how I am doing in my online classes.	
24. I communicate with my classmates to find out what I am learning that is different from what they are learning.	

APPENDIX E
SEMI-STRUCTURED INTERVIEW QUESTIONS

1. When you think about your ability to complete your coursework on time, what are some of the issues you foresee that might prevent you from doing so?
2. Can you walk me through your typical process of organizing and planning how you will complete coursework when you first begin a course?
3. Some people feel that their personality is better suited for face-to-face instruction rather than online, or vice versa.
 - a. Do you believe you are naturally more suited to one format or the other?
 - b. If so, which one and why?
4. The online survey asked you to think in general terms about your use of various learning strategies. In completing the survey, did you answer within the context of how you behave in a face-to-face or online course?
5. If you've taken both face-to-face and online courses, how do you feel that your study and/or organizational strategies differ within each setting?

VITA

Jacqueline L. Bruso

Darden College of Education, Old Dominion University, Norfolk VA

WORK EXPERIENCE

Regent University, Teaching & Learning Technology

Support, Information Technology Department, Virginia Beach, VA (2018-present)

Senior Instructional Designer

- Conduct needs assessments to design and deliver appropriate technology resources and research-based teaching and learning strategies
- Advise instructional personnel on best practices related to technology integration and use
- Support Level 1 and 2 Helpdesk personnel in the resolution of faculty service and support
- Supervise instructional technology staff and monitor course support projects via project management software and other collaborative tools

Regent University, Center for Teaching & Learning, Virginia Beach, VA (2013-2018)

Senior Instructional Designer

- Design and develop engaging, interactive learner experiences for online and face-to-face settings
- Conduct needs assessments to design appropriate professional development offerings, facilitate enriching collaborative opportunities, and provide technology resources and research-based teaching and learning strategies
- Design a variety of content, interactions, and assessments based on alignment to learning outcomes and objectives
- Review quality matters criteria and assess the appropriateness of content to develop standards for design and implementation via an ongoing, collaborative quality assurance process
- Supervise instructional design and instructional technology staff and monitor course development projects via project management software and other collaborative tools

Regent University, School of Education, Virginia Beach, VA (1998-2013)

Coordinator of Distance Programs

- Develop, deliver, and maintain online orientation required for all new students
- Design and deliver student training in the areas of online learning skills, academic research and writing, effective communication, group collaboration, and autonomous learning
- Assist online students in accessing University academic support services
- Recommend systems, policies, and procedures for academic support of distance learners

- Assist faculty in the development, delivery, and maintenance of online courses via University's course management system (Blackboard)
- Design and deliver faculty and adjunct training in the area of online learning pedagogy and technology integration
- Review and evaluate Blackboard course sites for effective instructional design and delivery practices

EDUCATION

Old Dominion University, Norfolk VA

Ph.D. Candidate, ABD - Instructional Design & Technology

Dissertation Title: An Examination of Personality Dimensions as a Predictor of the Use of Self-Regulated Learning Strategies

Regent University, Virginia Beach, VA (1998-2000)

Master of Arts in Organizational Leadership

Saint Leo University, Saint Leo, FL (1996-1998)

Bachelor of Arts in Business Administration, Magna Cum Laude

TEACHING EXPERIENCE

Regent University, School of Education, Virginia Beach, VA (2000-present)

Adjunct Instructor

Doctoral courses taught:

- Instructional Design for Online Learning
- Teaching, Learning, and Technology
- Foundations of Online Learning
- Trends in Educational Technology
- New Media in Online Learning
- Advanced Online Learning

Master's courses taught:

- Technology for Educators
- Technology for Administrators
- Orientation to Technology in Education
- Applications of Technology for Teaching and Learning
- New Student Online Orientation

TECHNOLOGY/SOFTWARE PROFICIENCIES

- Articulate 360
- Articulate Rise
- VideoScribe
- Blackboard
- Panopto
- VoiceThread
- MS Office
- Google Apps

PUBLICATIONS

Bruso, J., & Stefaniak, J. (2016). The use of self-regulated learning measure questionnaires as a predictor of academic success. *Tech Trends*, 60(6), 577–584.
<https://doi.org/10.1007/s11528-016-0096-6>

“A Comprehensive Orientation to Address Diverse Student Needs,” chapter contribution in *Quality Enhancing Practices in Distance Education – Volume II*, Instructional Telecommunications Council, 2001.

PROFESSIONAL PRESENTATIONS

Unleashing the Possibilities: New Instructional Design Tools and Techniques, School of Education, Regent University, June 2014 (Presenter)

From Sweet 16 to the Elite 8: Accelerated Course Best Practices, School of Education, Regent University, June 2014 (Presenter)

Unleashing the Power of Bb Collaborate, School of Education, Regent University, June 2014 (Presenter)

***Redefining Literacy for the 21st Century*, 2005 Revitalizing Christian Education Conference, Virginia Beach, VA (Invited Speaker)**

2003 *Interactive Technologies*, Society for Applied Learning Technologies, Arlington, VA, August 2003 (Invited speaker)

TeleLearning 2000, Atlantic City, NJ, October 2000 (Presenter)

Sixth International Conference on Asynchronous Learning: Building Sustainable Online Learning Environments, University of Maryland, December, 2000 (Presenter)

CERTIFICATIONS

- *Applying the QM Rubric*, Quality Matters
- *Blackboard Certification*, Regent University

PROFESSIONAL AFFILIATIONS

Member, *Association for Educational Communications and Technology*
Member, *International Society for Technology in Education*