

MBA Admissions Requirements as Predictors of
Motivational Beliefs and Self-Regulatory Strategies
in Self-Selected Online MBA Students

by

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ABSTRACT

Driven by a variety of factors, online learning has continued to grow at an unprecedented rate. A Sloan Foundation report issued in January of 2010 indicated that in 2009, 4.6 million students took at least one online class, an increase in 17% over 2008. Graduate business education, and more specifically, Master of Business Administration (MBA) programs have responded to this growth and other drivers such as globalization, institutional competition and student demand by leveraging the online platform more extensively. Because of the continued growth of online programs, there is an ongoing need to better understand the motivational beliefs and self-regulatory strategies students utilize to achieve academic success. Self-regulation is a social-cognitive construct supported by several decades of research, which posits that students engage in a self-directive process to transform their mental abilities into academic skills. Online MBA students balance work, family, business travel and other life events while pursuing their degree. Their ability to balance life events while succeeding academically suggests they possess the capacity for academic self-regulation. Can admissions requirements that are already in place provide insight into how students' manage their academic self-regulation? This study examined the relationship between the MBA admissions requirements of Graduate Management

Admissions Test (GMAT) total score, GMAT verbal score and years of work experience to determine if they were predictive of the student's motivational beliefs and self-regulatory learning strategies. GMAT scores and years of work experience are often thought to be predictors of student success in MBA programs. Self-selected online MBA students (n = 130) completed the Motivated Strategies for Learning Questionnaire during the final week of Organization Theory and Behavior, a core course in the MBA program. Analysis indicated that the MBA admissions requirements of GMAT total score, GMAT verbal score, and years of work experience were not reliable predictors of motivational beliefs and self-regulatory strategies. The findings indicate that while admissions criteria may be predictive of student success in the overall program, they provide little insight about how students manage their motivational beliefs and self-regulatory strategies while participating in their courses.

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TABLE OF CONTENTS

	Page
LIST OF TABLES.....	x
CHAPTER	
1. INTRODUCTION.....	1
Statement of the Problem.....	1
Organization of the Study.....	7
Definition of Terms	8
Self-regulation.....	8
Motivation Factors/Beliefs	8
Learning Strategies	8
Online MBA	9
Purpose of the Study	9
Research Questions	10
Students' facility with technology.....	11
Course management system	12
Course development methodology	12
Variable levels of access and continuity	12
Homogeneity of the participants.....	13
Applicability of the findings	13
Assumptions	13
GMAT Scores	13

Chapter	Page
MSLQ	14
Significance of the Study	14
Proposed Methodology	15
Summary.....	18
2. LITERATURE REVIEW.....	19
Graduate Management Admissions Test.....	19
Master of Business Administration Programs	21
Distance Education/Online Learning.....	28
Self-regulated Learning	33
Artino’s Conceptual Model of Self-Regulation Online.....	39
Summary.....	44
3. METHODS AND PROCEDURES	45
Research Questions	45
Participants	46
Setting.....	47
Instrument and Data	50
Motivated Strategies for Learning Questionnaire.....	50
Predictor Variables	52
Design	52
Procedure	53

Chapter	Page
Data Analysis	55
Findings	57
Research Question 1	57
Research Question 2	58
Research Question 3	59
Research Question 4	60
Research Question 5	61
Research Question 6	62
Assumptions and Limitations.....	63
Summary.....	64
4. RESULTS	65
Data Screening	65
Motivated Strategies for Learning Questionnaire	67
GMAT Score as a Predictor of Academic Success.....	67
Findings	68
Research Question 1	68
Research Question 2	71
Research Question 3	74
Research Question 4	76
Research Question 5	80

Chapter	Page
Research Question 6	83
5. DISCUSSION	86
Overview of the Study	86
Research Questions	87
Research Question 1	88
Research Question 2	92
Research Question 3	95
Research Question 4	98
Research Question 5	101
Research Question 6	105
Limitations	107
Implications	108
Recommendations for Future Research	110
Conclusion.....	112
REFERENCES	115
APPENDIX	125
Human Subjects approval.....	126
Motivated Strategies for Learning Questionnaires	127

LIST OF TABLES

Table	Page
1. Reliability Scores as Reported by Pintrich.....	16
2. MSLQ Chronbach’s Alpha for Internal Consistency	56
3. GMAT total scores and Self-efficacy	58
4. GMAT total scores and Task Value	59
5. Years of Work Experience and Intrinsic Goal Orientation	60
6. Years of Work Experience and Extrinsic Goal Motivation.....	61
7. Years of Work Experience and Critical Thinking.....	62
8. GMAT Verbal Score and Critical Thinking.....	63
9. Self-efficacy for Learning and Performance Subscale Statements .	69
10. Self-efficacy for Learning and Performance	70
11. Task Value Subscale Statements.....	72
12. Frequencies and Descriptive Statistics, Task Value	73
13. Intrinsic Goal Orientation Subscale Statements	75
14. Frequencies and Descriptive Statistics: Intrinsic Goal Orientation	76
15. Extrinsic Goal Orientation Subscale Statements	77
16. Frequencies and Descriptive Statistics: Extrinsic Goal Orientation	79
17. Critical Thinking Subscale Statements.....	81

Table	Page
18. Frequencies and Descriptive Statistics: Critical Thinking	82

Chapter 1

Introduction

As the reach of online learning continues to grow, questions continue to emerge about how students negotiate the online learning environment to insure their academic success. What motivational beliefs and self-regulatory strategies do they leverage to insure progress in their courses and academic success throughout their online program as a whole? Can Master of Business Administration (MBA) admissions requirements, which are thought to be predictors of academic success, also predict student's abilities to leverage motivational beliefs and self-regulation strategies? Moreover, do students participating in more focused online programs, such as an Online MBA program, utilize motivational and self-regulatory strategies in the same ways? These questions reveal significant gaps in the research (Bernard et al., 2004) particularly in the case of highly structured graduate online programs. Given the aggressive growth of online learning, the gaps in the research are troubling and served to guide this study.

Statement of the Problem

Online learning continues to experience unprecedented growth. In January of 2010, the Sloan Foundation reported that 4.6 million students took at least one online class during the past year, an

increase in 17% over the previous survey conducted in 2009 (E. I. Allen & Seaman, 2010). Allen and Seaman also note that some of the factors driving the continued growth are increased demand due to economic circumstances, as a contingency plan for mitigating disasters or pandemics and an acknowledgement by some administrators that online learning has become a strategic component for institutional success. In the case of graduate business education, and specifically MBA programs, there is growing recognition that online learning can play a vital role in retention and recruitment. Other external pressures such as globalization (Alon & McAllaster, 2009) and institutional competition (Sharkey & Beeman, 2008), also act as drivers, often forcing business schools to reevaluate their commitment to online programs.

In “The World is Flat: A Brief History of the Twenty-first Century” Thomas Friedman (2007) explores the process of globalization and the impact it continues to have across all segments of society including higher education. Throughout his discussion he makes two points abundantly clear; technology has been a principle enabler of globalization, and the changes enabled by technology will continue to have far-reaching and sometimes unforeseen implications. To illustrate the scope of these changes, Friedman discusses how two of the most tangible practices of globalization, outsourcing and off

shoring, are used as catalysts for ongoing political debate and public discourse.

The debate about globalization has established itself as a key issue in higher education as well (Bok, 2003; Kirp, 2003), and often focuses on the role of the academe in the global marketplace and the ways in which teaching and learning must change and adapt to meet shifting requirements and demands (Alon & McAllaster, 2009; W. O. Lee, 2008). While Friedman examines the basic framework of the education system and suggests the ways in which elementary education in the United States is failing to prepare students to operate in the global environment, he goes on to observe that that higher education has not been immune from these effects. He provides an example by detailing how Georgia Tech found it necessary to redesign its computer science major to accommodate the changing global landscape (Friedman, 2007). As Friedman's example demonstrates, coping with globalization requires that academic institutions evaluate and change their strategic outlook, form partnerships or alliances, and restructure their goals, processes and output (Bok, 2003; Kirp, 2003).

Lee (2008) examined how the concept of the entrepreneurial university is emerging from the shifting understanding of globalization, the economy and scholarship. Institutions with the capacity to respond to these forces often engage in a program of

organizational transformation informed by factors such as needs, research strengths and regional or geographic specialties (Clark, 2004). One tangible product of the transformational process is a public statement of place or a strategic plan that articulates the way that institution envisions its role in the global community. These are broad administrative efforts that go beyond the simplistic element of foreign studies programs and involve global engagement as an integral part of the institution's mission and strategic vision. As an example, Arizona State University lists global engagement as one of the design aspirations guiding the university in its transformation to a "New American University" (Arizona State University, 2008).

These transformations can also serve as a way of attracting students, an implicit inference being that a undergraduate, graduate or professional degree from a specific institution may have higher value because of that institution's role in thought leadership. One example is the development, delivery and administration of online graduate business education. The MBA degree is often a prerequisite for long-term success and career progression among top tier management personnel. These employees work in high performing organizations that operate in a global business environment. Arcidiacono, Cooley, and Hussey (2008) affirm this perspective when they note that, "MBA programs are geared more directly toward

increasing wages or other career related goals” (p. 874). Highly-ranked MBA programs provide thought leadership for the global business environment by continuously revising their curricula. Constant revision creates programs that reflect the most current research and global business practices, and provide the education necessary for MBA students to function within the global marketplace.

The same technologies that are driving and enabling globalization are also helping to restructure the traditional delivery platforms for MBA programs (Zhai & Liu, 2005). Existing platforms such as Accelerated, Evening and Executive MBAs offer hybrid options that have realized varying levels of success. The delivery platform that has continued to realize the most significant growth during the past several years, however, is online. While online programs continue to present unique questions and challenges, ongoing improvements in the underlying infrastructure are driving innovation and new modes of instruction. Web 2.0 and other development frameworks continue to provide more powerful tools, methods, capabilities and options for online delivery. These options allow online programs to transcend geospatial and temporal boundaries, and have become an accepted part of graduate business education. Students increasingly view online delivery in the same context as other collaborative technologies within the business environment.

The convergence of globalization, the institutional need to accommodate it and the continued growth of online MBA programs has created an environment in which higher education often seeks the path of least resistance. Institutions frequently rely on a design model that attempts to simply move the classroom to the online environment, with an emphasis on the technology instead of the student. While provisions are made for technical support, overlooked are the more practical aspects of how online MBA students involved with work, business travel, family and other time constraints or life events will regulate their academic workload across the duration of the program.

While a body of literature does exist examining traditional undergraduate learners and the motivational beliefs and self-regulatory strategies they use (Boekaerts & Cascallar, 2006; Schunk, 2005; Schunk & Zimmerman, 1994; Zimmerman, 2002), and while there is some literature on how they use these strategies in the online or web-based environment (Lynch & Dembo, 2004; McMahon & Oliver, 2001; Miltiadou & Savenye, 2003; Whipp & Chiarelli, 2004), little has been done to discover how these strategies are used by students seeking a professional degree such as the MBA. If business schools are to develop robust, comprehensive and effective online programs for working professionals that insure student success, closer attention must be paid to student needs. A deeper insight and better

understanding of the motivational beliefs and self-regulatory strategies that students leverage while pursuing their degree online must be developed.

Organization of the Study

Chapter 1 of this study provides an overview and statement of the problem. It also includes a definition of terms and the purpose of the study, iterates the research questions, provides the significance of the study and offers assumptions and limitations.

Chapter 2 provides a review of the applicable literature focusing on the Graduate Management Admissions Test (GMAT), a historical overview of MBA programs, a review of distance education and self-regulated learning. A conceptual model of self-regulation online is offered at the conclusion of the chapter and serves to guide the discussion for this study.

Chapter 3 contains the procedures and research methodologies used to conduct the study. It includes a description of the MBA program under study, a description of the study's population, provides details of the survey instrument utilized and explains the procedures used for data collection and analysis.

Chapter 4 contains detailed results of the data analysis.

Chapter 5 completes the study by providing a discussion of the findings. Implications of the study are discussed along with proposed directions for future research and a conclusion.

Definition of Terms

The following terms are defined as follows for the purpose of this study:

Self-regulation

Self-regulation, which is sometimes referred to as academic self-regulation, is defined as, “learning that occurs largely from the influence of students self-generated thoughts, feelings, strategies and behaviors, which are oriented toward the attainment of goals” (Schunk & Zimmerman, 1998, p. viii)

Motivation Factors/Beliefs

Motivation factors/beliefs is used throughout the study and refers to the items that make up the motivation scales of the Motivated Strategies for Learning Questionnaire (MSLQ). They include intrinsic and extrinsic goal orientation, task value, control beliefs, self-efficacy of learning and performance and test anxiety.

Learning Strategies

Learning strategies are used as a collective reference to the items that make up the learning strategies scales of the MSLQ. They include rehearsal, elaboration, organization, critical thinking, meta-

cognitive self-regulation, time and study environment, effort regulation, peer learning and help seeking.

Online MBA

Online MBA is used as a collective reference to the MBA program under study and other MBA programs delivered via the Internet.

Purpose of the Study

The purpose of this study was to determine if the admissions requirements of GMAT total score, GMAT verbal score and years of work experience were predictive of the motivational beliefs and self-regulatory strategies of self-efficacy, task value, intrinsic and extrinsic goal orientation and critical thinking. This study is meant to fill a gap in the existing literature by examining a population that has received relatively little attention. While there is a broad base of research on academic self-regulation, it is often directed at undergraduates in the traditional classroom. Relatively little research has been directed at students seeking professional degrees. This study employed a conceptual model of self-regulation online offered by Artino (2008a) as the principal guidance for discussion. Models of self-regulation offered by Bandura (1991), Pintrich (Boekaerts, Pintrich, & Zeidner, 2000) and

Zimmerman (2002) are considered as well because of Artino's reliance on them as a core component of his model. Each of the models is based on social cognitive theories of self-regulated learning that are supported by more than thirty years of research.

Research Questions

This study addressed six specific research questions, which are:

1. Are the GMAT total scores of self-selected online MBA students a reliable predictor of their motivational beliefs of self-efficacy for learning and performance?
2. Are the GMAT total scores of self-selected online MBA students a reliable predictor of their motivational beliefs of task value?
3. Are the years of work experience of self-selected online MBA students a reliable predictor of their motivational beliefs of intrinsic goal orientation?
4. Are the years of work experience of self-selected online MBA students a reliable predictor of their motivational beliefs of extrinsic goal orientation?
5. Are the years of work experience of self-selected online MBA students a reliable predictor of their learning strategy of critical thinking?
6. Are the GMAT verbal scores of self-selected online MBA students a reliable predictor of their learning strategy of critical thinking?

Limitations of the Study

The chief limitations of this study were its exploratory nature and the use of correlation methodology. While correlation studies can examine relationships between variables and make inferences about their significance, they cannot by their nature determine causation (Shadish, Cook, & Campbell, 2002). Several other limitations and assumptions have potential impact for this study. These limitations include, but are not limited to student's facility with technology, the course management system used, the development methodology of the courses, variable levels of access and continuity, homogeneity of the participants and generalizability of the findings.

Students' facility with technology

The Online MBA program that participants for this study were drawn from does not have a residency component and is delivered completely online. The program features a three-day face-to-face orientation, which included a two-hour introduction to the technology utilized for delivery. During these sessions, students reported varying levels of comfort with the technology. Additionally, some students participated during work hours using equipment provided by their employer. These students sometimes reported problems with their ability to participate or view some types of course material such as streaming video. The problems experienced by these students are often

due to network security policies or other limitations imposed by their employer and their employer's network infrastructure.

Course management system

The Course Management System (CMS) used to deliver this online MBA was Blackboard, version 7.3. While Blackboard allows the development staff and faculty to manage content effectively, it imposes a hierarchal structure on the content that may not represent the best choice for all students or learning styles.

Course development methodology

The MBA program featured in this study utilizes a managed, developer-centric course development model. The design model imposes a level of consistency across all courses in the program. While faculty members actively work with developers as content experts and can add supplemental content to their courses, the foundational material is presented in an identical, text-based format in all courses.

Variable levels of access and continuity

The participants in this study were working professionals pursuing their MBA degree in addition to their normal work schedule. The bulk of students enrolled in the program were mid-to upper-level managers in large corporations, and many travel extensively while participating in this program. Some traveled to remote locations with varying levels of network access, and may not have been physically

able to work with their team, contribute to ongoing course discussions or submit assignments on time. These factors may have altered their perception of the course.

Homogeneity of the participants

The participants in this survey were ethnically and professionally homogenous. While there was some ethnic variance in the population, the majority of participants were male and Caucasian. While the sample is homogenous it is consistent with MBA programs as a whole. Simpson (2006) notes that the MBA was originally designed for Caucasian men.

Applicability of the findings

The applicability of the findings may be limited to populations of online MBA students and not be applicable to alternative MBA platforms.

Assumptions

The following assumptions were made during the course of this study:

GMAT Scores

This study used the GMAT total score, GMAT verbal score and years of work experience as predictor variables. It was assumed that the admissions staff entered these scores, which were drawn from admissions records correctly.

MSLQ

The MSLQ is a self-report instrument and it was assumed that participants were answering honestly. Additionally, the MSLQ is designed to assess motivational beliefs and learning strategies for a particular course (Pintrich, 1993). It was assumed that participants were responding to the survey based on their feelings about that course.

Significance of the Study

The results of this study hold potential significance at the functional, practical and theoretical levels. At the theoretical level, this study will make a contribution to the growing body of literature on motivational beliefs and self-regulatory strategies. It also adds to the existing body of literature by providing insight into a previously understudied population. Practical applications are potentially wide ranging and the information derived from this study may be of value to administrators in the recruitment of students, the planning, development and implementation of online programs and the development of other professional programs.

The Online MBA is the fastest growing segment of MBA education. A deeper understanding of how students achieve a balance between their work, family, life events and academic challenges is critical. Developing programs based on this understanding has the

potential to support and promote student success and success of new and existing online MBA programs. Functionally, the findings of this study could be used as a framework for program architects, software developers and instructional designers. Building or modifying the structure and delivery of online courses has the potential to accommodate and promote the motivational beliefs and self-regulatory strategies being used by students.

Proposed Methodology

The MSLQ (Pintirich, Smith, Garcia, & McKeachie, 1991) was the instrument selected for use in this study. The MSLQ is a self-report questionnaire divided into two sections; one containing items to assess motivational beliefs and a second section that assesses strategies for learning. The instrument has a total of 81 items that are divided across 15 subscales. Six of the subscales fall under the motivation section of the instrument and include; intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs, self-efficacy for learning and performance and test anxiety. The remaining nine subscales are in the strategies for learning section and include; rehearsal, elaboration, organization, critical thinking, meta-cognitive self-regulation, time and study environment, effort regulation, peer learning and help seeking.

The MSLQ has been in use since 1991 and was designed to “assess college students’ motivational orientations and their use of different learning strategies for a college course” (Pintrich, Smith, Garcia, & McKeach, 1991, p. 3). The subscales can be used together as a complete assessment or individually to fit the needs of the researcher. Because of this, reliability measurements have been applied to each subscale. Pintrich reports moderate to large Cronbach alphas ranging from .52 ($\alpha = .52$) to .93 ($\alpha = .93$) (Pintrich, 1993). The reliability scores reported by Pintrich, are listed in Table 1. Others have reported reliability measures that have been consistent with, or higher than the values reported by Pintrich.

Table 1
Reliability Scores as Reported by Pintrich

Subscale	α	<i>n</i>
Intrinsic goal orientation	.74	380
Extrinsic goal orientation	.62	380
Task value	.90	380
Control of learning beliefs	.68	380
Self-efficacy for learning and performance	.93	380
Test anxiety	.80	380
Rehearsal	.69	380
Elaboration	.76	380
Organization	.64	380
Critical thinking	.80	380
Meta-cognitive self-regulation	.79	380
Time and study environment	.76	380
Effort regulation	.69	380
Peer learning	.76	380
Help seeking	.52	380

Source: (Pintrich, 1993)

Participants were solicited from students enrolled in the Online MBA program at a nationally ranked and accredited business school at a large public university in the Southwestern United States. The business school offers several MBA platforms including Full-time, Evening, Executive and Online. While the admissions staff may recommend a particular platform to a student during the admissions cycle, it is ultimately the student who selects the platform that fits their needs.

An incentive was offered to potential participants as part of the solicitation process to spur greater participation. Those who participated in the study were entered into a random drawing for one Apple iPod Shuffle. Participants were solicited via an email that included a link to an online version of the MSLQ. Prior to beginning the questionnaire informed consent information was issued, and continuing past the consent page implied consent. Participants were then asked to provide demographic information, which provided additional data for analysis.

Following completion of the demographic information, participants were asked to complete an online version of the MSLQ. The responses were captured in a Microsoft SQL Server 7 database to allow easier preparation and manipulation of the data for statistical analysis. Because the MSLQ is designed to assess a student's

motivational beliefs and learning strategies for a given course, all participants were solicited in week five of their Organizational Behavior and Theory course. The data recorded from the questionnaire and the predictor variables of GMAT total score, GMAT verbal score and years of work experience were analyzed using appropriate statistical tests.

Summary

This chapter provided an overview and statement of the problem under consideration in this study. It detailed the organization of the study and provided a definition of the terms that are used throughout the study. The purpose of the study was explained, and its limitations and assumptions were discussed. Finally, the proposed methodology used to conduct the study was reviewed. Chapter 2 will provide a review of the foundational and current literature covering, the relevance of GMAT scores, distance and online learning, MBA programs and self-regulated learning. Chapter 2 concludes by offering an overview of Artino's (Artino, 2008a) conceptual model of self-regulation online.

Chapter 2

Literature Review

The purpose of this study was to determine if the Master of Business Administration (MBA) program admissions requirements of Graduate Management Admissions Test (GMAT) total score, GMAT verbal score and years of work experience were predictive of motivational beliefs and self-regulation strategies in self-selecting Online MBA students. This chapter provides a framework for the study by reviewing the foundational and current literature related to the GMAT, the origin and current status of MBA programs, distance and online learning and self-regulated learning. This chapter will conclude by reviewing Artino's Conceptual Model of Self-Regulation Online that will serve to guide the discussion of the findings in this study.

Graduate Management Admissions Test

Like many professional degree programs, Master of Business Administration (MBA) programs utilize admissions criteria that emphasize disciplinary competencies. While the number and format of these requirements may vary from program to program, one that remains consistent for Association to Advance Collegiate Schools of Business (AACSB) accredited business schools is the GMAT. The GMAT is "designed to measure skills shown to help graduate business students succeed" (Graduate Management Admission Council, 2010)

and remains one of the key admissions criteria for the majority of accredited business schools. The test, which is owned by the Graduate Management Admission Council (GMAC), is a computer adaptive test designed to measure verbal, mathematical and analytical writing skills “that have been developed over a long period of time through education and work” (Graduate Management Admission Council, 2010). The GMAT has been under continuous development and improvement since its inception fifty years ago and is considered a valid and reliable measure of the skills it purports to measure. GMAC reports reliability scores of 0.92 ($\alpha = 0.92$) for GMAT total score, 0.90 ($\alpha = 0.90$) for GMAT verbal score and 0.89 ($\alpha = 0.89$) for GMAT quantitative Score.

High reliability, standardized procedures for administration of the test and high levels of test security make the GMAT a stable standard for business schools. An implicit assumption of GMAT scores however, is that they are an indicator of a student’s ability to succeed in an MBA program. As MBA programs have grown beyond traditional full-time platforms some scholars have questioned the GMATs predictive ability across these platforms. Some contend that the GMAT may be more predictive of student’s success in a traditional full-time MBA program than an Executive MBA program for example. Executive MBA programs are tailored towards upper-level corporate executives with significantly more work experience than depth of

experience may impact the GMAT's predictive ability. Daniel (2007) found that while the GMAT was related to performance in first-year MBA classes, it was a poor predictor of the overall success of Executive MBA students.

Fish and Wilson (2007) examined admissions factors for one-year and part-time MBA platforms and concluded that the predictive ability of the GMAT may vary across platforms and may require the consideration of different admissions criteria. Other research showed that while the GMAT is reliable it has, "been found to exhibit disparities in test scores across both gender and racial/ethnic subgroups" (Hedlund, Wilt, Nebel, Ashford, & Sternberg, 2006, p. 102). Siegert (2008) contends that the GMAT scores could be used more effectively if they were used in conjunction with undergraduate GPA scores. Although these scholars have expressed some concerns about the GMAT, the single common thread running through this research is an indication that the GMAT may not be a predictor of success across different types of MBA platforms or programs.

Master of Business Administration Programs

The most recent statistics indicate that MBA approximately 24% of all graduate degrees earned in the United States were awarded in business (Statistical Abstract of the United States, 2010). Since the inception of the first MBA degree at Dartmouth's Tuck School of

Business in 1900 (C. A. Daniel, 1998), the purpose and value of MBA degree programs have continued to change and grow. Conceived of from a mentorship perspective, the first MBA programs were principally taught by retired corporate executives who adopted a “lessons I learned” approach to the curriculum. Friga, Bettis and Sullivan (2003) classified this type of curriculum as the “Corporate-Based Era” and note that it was the first in three phases of development for MBA programs.

MBA programs reached their second phase of development, which Friga (Friga et al., 2003) classified as the “Faculty-Based Era” around 1954 when the Ford Foundation sponsored efforts to make business schools “more academic, research based and analytical” (p. 235). Schlossman, Sedlak and Wechsler (1998) explain that no more than four years later, business schools had made progress and began to shift towards research focused programs. Reforms continued and major changes came in 1970 when the Carnegie Commission cited a lack of breadth in research relevance and an inability to prepare students for entrepreneurial careers. MBA programs responded to these criticisms by adding entrepreneurial tracks to their programs that broadened the breadth and depth of their research. They also began moving toward team-oriented work but despite these changes, the programs remained faculty driven and continued to focus on knowledge assimilation.

Another significant development in the evolution of MBA programs came in 1988 when the media devised MBA rankings (Peters, 2007). Publications such as U.S. News and World Report, Business Week and The Wall Street Journal publish business school rankings and each publication uses a different methodology for calculation them. Peters (2007) provides some examples of the criteria used to compose the rankings which include factors like placement success, student selectivity and reputation of the business school itself. Because the methodology and factors used to calculate rankings vary widely, their importance and validity continue to be a fierce source of debate within the business school community (Bickerstaffe & Ridgers, 2007; Holbrook, 2004). While some institutions, like the Harvard Business School and the Wharton School of Business, have withdrawn from the process completely (Bickerstaffe & Ridgers, 2007) others utilize rankings as a marketing tool.

Rankings can serve as a powerful recruitment tool because of the prestige associated with a given business school's placement in the rankings (Peters, 2007). While rankings are not a primary contributing factor to the growth of MBA programs it is clear that they do drive students seeking MBAs toward specific schools (Bickerstaffe & Ridgers, 2007). Peters (2007) also comments on the importance of ranking noting that, "95% of graduating MBAs said that school

rankings had more influence on their decision making process than any other media source.”

The way in which students use rankings as a selection criteria for the business school they wish to attend demonstrates the third phase of development which Friga (2003) classifies as the “Student-Based Era” of MBA education. He argues that one of the most important strategies in the student-based era will be to deliver high-quality content in the most efficient way possible. While the traditional platform for delivery of MBA programs has been the Full-time program, an increasing number of institutions are creating alternative delivery platforms. For example, Evening MBA programs are oriented toward working professionals residing in an institution’s local area, while Executive MBA programs focus on upper-level managers and executives with significant management experience. Some institutions have also developed Corporate MBA platforms that are designed in partnership with specific companies and typically emphasize a specific specialization such as supply chain management. While each of these alternative platforms has demonstrated continued growth over the past decade, the most aggressively developed platform has been the Online MBA.

Sharkey (2008) contends that the aggressive development of Online MBA platforms by business schools is a response to a hyper-

competitive market. Many business schools have found that a competitive market reduces the potential target population for recruitment within their geographic boundaries. Additionally, colleges and universities are now being forced to compete with a growing number of corporate universities and external for profit ventures such as the University of Phoenix. Of the 570 schools of business accredited by the Association to Advance Collegiate Schools of Business (AACBSB), 71 have moved into the online market and offer an Online MBA as one of their delivery platforms (AACSB, 2010).

The academic content of alternative platforms is usually based on the accredited curriculum of the Full-time MBA platform at each institution. The faculty teaching within alternative MBA platforms varies across institutions however, with some schools using only tenured faculty while others may use adjuncts. Online MBA programs also tend to rely on the accreditation of the Full-time MBA platform and are generally not accredited separately; the result can be varying levels of content in both content and instruction.

Rungtusanatham, Ellram, Siferd and Salik (2004) have proposed typologies or models for the development of Online MBA programs to help mitigate quality issues. Realistically however, variables like funding, manpower, audience and institutional goals will continue to introduce variance into the structure of these programs.

Despite the differences however, a continually growing body of research indicates that there are certain elements necessary for the success of Online MBA programs. Researchers (Bocchi, Eastman, & Swift, 2004; Zhai & Liu, 2005) have consistently found that students cite flexibility as one of the leading reasons they choose an Online MBA program. Online MBA students tend to be working professionals who travel for business during the course of the program. From their perspective, flexibility means “anytime, anywhere”. This concept of flexibility imposes a structural constraint on the design of an Online MBA program in which “case-based” asynchronous methodologies are preferred (S. H. Lee, Lee, Liu, Bonk, & Magjuka, 2009).

While seemingly counterintuitive to the notion of flexibility, McGorry (2002) found that students “cite lack of interaction as their main concern with online courses” (p. 174). Others (Su, Bonk, Magjuka, Liu, & Lee, 2005) found that while students perceive interaction as an effective means of learning, the desire for interaction can vary from student to student. MBA courses often involve collaborative effort between students as they work to complete team-based projects (Gabriel & MacDonald, 2002; S. H. Lee, Bonk, Magjuka, Su, & Liu, 2006), case studies and manage other course requirements. Beyond team-based collaboration researchers have also found that students place high value on interaction with the instructor as well (S.

H. Lee et al., 2009; Su et al., 2005). Conaway, Easton and Schmidt (2005) discovered that while research indicates that students exhibit competencies for both interaction and immediacy in an online course, encouraging interaction may require the instructor to model certain types of communication behavior.

Modeling communication behavior presents insight into another key aspect important in the development of an Online MBA program; the creation of teaching presence. Using the Community of Inquiry Model, Arbaugh and Hwang (2006) validated the construct of teaching presence and found that course design and organization, facilitating discourse and direct instruction were critical components. Others (Kim, Liu, & Bonk, 2005) discuss the importance of teaching presence indirectly and cite the lack of interaction with instructors as a barrier to online learning. These barriers can often be mitigated through proactive action and researchers have found that a face-to-face orientation can help students increase confidence, academic and technical skills and develop expectations for learning in an online environment (Kanuka & Jugdev, 2006).

While flexibility, interaction and teaching presence may be important factors for success in any online learning program, the need for them is more acutely felt in an Online MBA program. Many MBA courses are built around a team-based approach to problem solving in

which students are required to collaborate with other members of their team. Facilitating this type of learning paradigm in the online environment can be challenging for both the institution and the students. A larger challenge however, may be one of perception. Some prospective students and their employers still view Online MBA programs as something new that have not stood the test of time. These perceptions are due in large part to how many conceive of online learning, which implies a short-term history concurrent with the growth of the Internet. Despite this perception, many of the underlying models, techniques and management frameworks for Online MBA programs have their roots in the historically rich field of distance education.

Distance Education/Online Learning

Despite the perceptions of newness connoted by the recent development of the underlying technologies that enable it, online learning is not new, but rather the latest progression of distance education. Distance education has been part of the educational landscape for more than 100 years and its presence, role and influence have constantly grown and evolved (Moore & Kearsley, 2004). The Internet, which began to reach widespread public awareness and availability in the mid 1990s, provided a platform for the unprecedented growth of distance education. In 2002, the United

States General Accounting Office reported that 1.5 million postsecondary students had taken at least one distance education course in the 1999-2000 school year. By 2007, the Sloan Foundation (E. A. Allen & Seaman, 2007) reported that “almost 3.5 million students were taking at least one online course during the fall 2006 term”. Exponential growth continues with the most recent report released by the Sloan Foundation noting a 17% increase over the 2008 with 4.6 million students taking at least one online class (E. I. Allen & Seaman, 2010).

One of the keys to the success of distance education has been its rich history of innovation and its ability to leverage mainstream and emergent technologies to broaden its potential audience. In the United States, the first sanctioned distance education program was a correspondence study course offered by Chautauqua Institute. New York State authorized the institute to conduct such courses in 1883 (Moore & Kearsley, 2004). The Chautauqua Institute’s correspondence program modeled a new mode of learning that was embraced by higher education in 1892, when the newly created University of Chicago Extension established the first formal distance education program (Moore & Kearsley, 2004).

In the years that followed, distance education continued to grow, growth that was accelerated through its ability to adapt to new

technologies and methods. Between 1927 and 1965 both radio and television were adopted and used to administer distance education courses and programs in varying forms. In one example, by 1939 the University of Iowa had used its television station to broadcast more than 400 education programs (Moore, 2003). While the use of radio and television enabled distance education to extend its range and broaden its potential audience, these technologies still suffered from limitations. Their unidirectional nature limited student interaction and range limitations constrained audiences to fairly narrow geographic regions. More importantly, the failure of faculty to realize the potential of these technologies allowed commercial entities to displace them (Moore, 2003).

If correspondence study and the adoption of television and radio broadened the role and awareness of distance education and made it an acceptable alternative, then the birth and subsequent rise of the Internet made it ubiquitous. Today the Internet is thought of in terms of the World Wide Web (WWW) and something that is experienced through a web browser. Prior to the advent of the WWW though other projects and initiatives like PLATO, Bitnet and NSFNet demonstrated the potential of the underlying technologies. Distance education research predating the WWW tended to focus on Computer Mediated Communication (CMC) because the primary tools available at that

time included email, listservs, discussion boards and other text based tools. While Scovell (1991) analyzed the differences between CMC and non CMC communicators. Arias and Bellman (1990) studied CMC in the context of linguistically diverse learners and Phelps, Well, Ashworth and Hann (1991) examined the cost and effectiveness of CMC in an educational context. Finally, even in the earliest stages in the development of online learning, Dyer (1991) of the United Kingdom's Open University described the role of CMC in the design and implementation of an MBA degree.

Driven by the invention of the WWW at CERN in 1993, the online segment of distance education began to grow exponentially. Web browsers mitigated many of the technical competency issues associated with CMC and online learning prior to the WWW, such as configuring propriety applications or the use of command line syntax. As the Internet continued to grow and technology improved a broader capacity for online learning developed. Ease of use and better access allowed online learning to grow and by 2000, less than ten years after the invention of the first web browser, more than 84% of public universities offered web-based courses (Green, 2001). While online learning has experienced continued growth, there is no concise definition of what it is (Moore & Kearsley, 2004) and the design, implementation and delivery of online courses are governed by

informal standards and practices. These challenges have caused researchers to ask a wide range of questions about the quality and effectiveness of online learning.

Most of the initial investigation about the effectiveness of online learning focused on the comparison between the traditional classroom and the online environment. Olsen and Wisher (2002) noted that due to the difference between the classroom and online environments, comparing online to computer-based instruction might be a more appropriate benchmark. They contend that while online learning may be more effective, it may not have realized its true potential because faculty have not been trained in the principles of instructional design. Bernard and others (2004) conducted a meta-analysis to determine if distance education compared to classroom instruction and found that asynchronous learning can, “more effectively provide interpersonal interaction and support two-way communication between instructors and students and among students, thereby producing a better approximation of a learner-centered environment” (p. 409). His analysis of the literature found that when online learning is used well, it could provide better learning outcomes than traditional classroom instruction.

Another meta-analysis (Sitzman, Kraiger, Stewart, & Wisher, 2006) noted similar results and found that web-based instruction was

6% more effective for teaching declarative knowledge. Swan's (2003) analysis had similar findings but noted that several studies focused on interaction and social presence as the key factors which created more positive outcomes. While the studies discussed here provide an indication that online learning can be as effective as traditional methods they also expose a shortcoming in the existing research.

Most studies discussed thus far in this literature review and in online learning as a whole, tend to focus on the technology, methods of delivery and instructional techniques used to facilitate online courses. Very few studies examine the effectiveness of online learning from the perspective of how students themselves manage online learning throughout the process. Some scholars (King, Harner, & Brown, 2000; Lynch & Dembo, 2004; Nieme, Nevgi, & Virtanen, 2003; Whipp & Chiarelli, 2004) contend that effectiveness is essentially an argument about technology and technique and that self-regulation is the key to success for students.

Self-regulated Learning

Bandura (1986) provided the foundational underpinnings for theories of self-regulation by offering several cognitive processes that act as key components. He contends that self-observation, judgmental functions and self-reactive influence govern how students perform (Bandura, 1986). According to Bandura, these processes allow

students to monitor their behavior, assess their performance and adjust and adapt their behaviors. Bandura ultimately coalesced these thoughts into a social cognitive theory of self-regulation, which posits that self-regulation lies at the heart of causal processes. He contends that one must manage a host of psychological components such as self-monitoring, self-reaction, and self-efficacy to enable self-directed change (Bandura, 1991).

Shunk and Zimmerman (1998) define self-regulated learning as, “learning that occurs largely from the influence of students self-generated thoughts, feelings, strategies and behaviors, which are oriented toward the attainment of goals” (p. viii). Zimmerman (2002) also states that self-regulated learners are proactive and notes that they view learning as something they do for themselves, not something that happens to them. Supported by more than two decades of research, most agree self-regulated learning is an dynamic and adaptive set of behaviors in which students set goals, monitor their performance, and regulate their behavior and motivation (Joo, Bong, & Choi, 2000; Pintrich, 1995; Schunk & Zimmerman, 1998, 2008; Zimmerman Barry J., 2001; Zimmerman, 1986). The definitions provided seem particularly relevant in the realm of online learning and specifically in the context of an Online MBA program.

While definitions of self-regulated learning can vary, most models view them as a process consisting of three phases, a preparatory phase, a performance phase and an appraisal phase (Puustinen & Pulkkinen, 2001). Pintrich offers a model which includes the preparatory phase of forethought, planning and activation, a performance phase of monitoring and control, and an appraisal phase of reaction and reflection (Puustinen & Pulkkinen, 2001). In the preparatory phase, students assess the context and set goals, make judgments about their self-efficacy or ability to reach those goals and plan the time and effort required. In the performance phase, students monitor and control cognition, motivation and behavior while regulating effort. In the appraisal phase, they reflect and react to their performance by making cognitive choices and assessing the ways in which they may need to change or adapt their behaviors for better learning to take place in the future (Puustinen & Pulkkinen, 2001).

Zimmerman offers a similar model of self-regulated learning (Zimmerman, 1998) which includes forethought, performance and self-reflection. Artino (2008b) notes the similarity between the models and comments that “This similarity is not surprising since both models are based on the social cognitive tradition” (p. 21). He goes on to state that while both models are closely aligned, Zimmerman (1998) places greater emphasis on self-efficacy while Pintrich takes a broader view of

the motivation constructs that impact self-regulation (Artino, 2008b; Puustinen & Pulkkinen, 2001).

Most models of self-regulation regard it not as a static concept, but as a dynamic and adaptive process (Butler & Winne, 1995). Zimmerman notes that, “self-regulated learning is not asocial in nature and origin” (p. 69), and that it can be learned through instruction and modeling. Butler and Winne (1995) argue that not only is self-regulation a dynamic process, but that monitoring occupies a pivotal role. They contend although monitoring is critical and generates “conditional knowledge”, it does not have to be a conscious process (Butler & Winne, 1995).

Others have focused on other components of self-regulation and their role and importance in the learning process. Corno (Corno, 1986) argues for the importance of meta-cognitive control. She defines meta-cognitive control as the, “functions of directing and controlling concentration during school learning tasks” (p. 334). In her mind, acknowledging external distracters and compensating for them is a key element of self-regulation. Ryan and Deci (2000) discuss the importance of internal and external motivation as key components of self-regulation. Intrinsic motivation is defined as, “the doing of an activity for its inherent satisfactions rather than for some separate consequence (p. 56)”. Intrinsic motivation could potentially play a

significant role in how Online MBA students' manage their learning as they try to balance their personal goals with those of the workplace.

In the context of online learning this definition is student centered with a focus on self-satisfaction and not an external reward or goal such as a grade. Extrinsic motivation is defined as “an activity that is done in order to attain some separable outcome” (Ryan & Deci, 2000, p. 60). Extrinsic motivation recognizes external rewards such as job progression. They note however that other rewards such as doing work to avoid sanctions can also be considered extrinsic motivation. Taken together self-regulated learning and the components that make it up have the potential to provide valuable insight into the learning processes in the online environment.

An increasing number of studies have recognized the importance of self-regulated learning in online courses and programs (Artino, 2008d; Barnard, Lan, To, Paton, & Lai, 2009; Dabbagh & Kitsantas, 2004; Kauffman, 2004). Some argue that web-based learning tools support and allow the development of self-regulatory skills and that students must “exercise a higher degree of self-regulatory competency to accomplish their learning goals” (Dabbagh & Kitsantas, 2004, p. 40). To date, the bulk of research on online learning has focused on technology, methods and management strategies with little emphasis on the students learning strategies. Those who have focused on self-

regulation in online learning contexts have found that students adapt their self-regulatory strategies for the online environment. Whipp and Chiarelli (2004) found that students adapted strategies like help-seeking, monitoring and self-reflection in ways that were unique to the online environment.

Students modified help-seeking behaviors by accessing technical assistance, using self-discovered supplemental materials and by using other student's work as a model for their own. Monitoring skills which Zimmerman (1986) defines as, "students initiated efforts to record events or results" (p. 337) were adapted by leveraging the technology and backing up online discussion boards, keeping backup copies of assignments and using the online grade book to monitor their progress (Whipp & Chiarelli, 2004). Some students reported that they augmented the self-reflection process through feedback from others on their discussion board posting, and reported they took more time creating those postings "so that others would want to read them" (Whipp & Chiarelli, 2004, p. 15). Based on the increasing importance of self-regulated learning in the online environment and a need to better understand how the online environment itself impacts self-regulated learning, Artino (2008a) developed a conceptual model of self-regulation online.

Artino's Conceptual Model of Self-Regulation Online

The advent of the Internet has created what might be considered a rebirth and reconceptualization of distance learning. While distance learning has a rich history, the exponential growth in online learning over the past fifteen years has reinvigorated the field. The rate of change in technology continuously requires the evolution and adaptation of models, methods and techniques.. The shift is perhaps best illustrated by the change in language, with the term online learning becoming more dominant phrase for distance education. Online learning relies on a variety of technologies to mediate the interactions between student and instructor, in most cases the interactions are asynchronous, creating a layer of separation between the instructor and student. This layer of separation requires that students leverage motivational beliefs and self-regulatory strategies previously discussed in this chapter to insure success (Dabbagh & Kitsantas, 2004).

While many models of self-regulation have origins in the traditional classroom environment, Artino offers a conceptual model of self-regulated learning tailored to the online environment. Pintrich (2000) defines self-regulated learning as “an active constructive process whereby learners set goals for their learning and then attempt

to monitor, regulate and control their cognition, motivation and behavior, guided and constrained by their goals and contextual features of the environment”. Artino takes special note of the environmental component of this definition and argues the importance of using social cognitive models that focus on how student’s personal perceptions influence their self-regulatory strategies (Artino, 2008a).

Artino builds his model on Bandura’s (1991) and contends that his model differs in that personal factors and academic behaviors are influenced by the learning environment itself (Artino, 2008a). Artino’s model, which leverages a theoretical foundation of more than thirty years of social cognitive, research emphasizes four components that include the contextual features of the online learning environment, the personal perceptions of the students, the student’s personal behavior and academic outcomes (Artino, 2008a). The components are not static but rather “interact as determinants of one another” (Artino, 2008a, p. 3). He does concede however, that a tacit assumption of his model is that the environment and instructional contexts are evaluated and perceived differently by each student.

Duncan and McKeachie (2005) affirm the perspective noting that the student is “an active processor of information” and as such, learning strategies can be brought under their control. The confluence of the environmental factors and the active processing of information

by the student creates an environment in which self-regulatory behaviors become adaptive and variable, with those behaviors contingent on students perceptions of how that course relates to them (Boekaerts & Cascallar, 2006).

Artino identifies two motivational beliefs above others that he contends are critical factors in the online environment, self-efficacy for learning, and task value. He cites Bandura's (1986) definition of self-efficacy in which "people's judgments of their capabilities to organize and execute a course of action to attain designated types of performances" (p. 391). Artino then goes on to argue that research shows that high self-efficacy results in fewer negative achievement emotions, higher use of self-regulation strategies, higher satisfaction and better learning and performance. In further support of the importance of high self-efficacy, Artino also cited Joo, Bong and Choi (2000) who found that not only did high self-efficacy have a positive relationship to the use of self-regulatory strategies, but it translated to efficacy in the utilization of the Internet as well.

Task value, defined as the "extent to which students find a task interesting, important or useful" (Eccles & Wigfield, 2002), is the second motivational belief that Artino contends is a key factor of his model. He cites Shunk (2005) who notes that "students with greater personal interest in a topic and those who view the activity as

important or useful are more likely to use adaptive self-regulatory strategies” (p. 87). Additional research such as Miltiadou and Savenye (2003) and Artino (2008c) has also found that task value is positively related to overall satisfaction and the use of cognitive and metacognitive learning strategies.

Personal perceptions are another key component in Artino’s model of self-regulation online. He suggests that student’s achievement emotions and motivational beliefs form a “loop” which mediates motivational mechanisms, including the use of learning strategies. Pekrun (2006) argues students motivational beliefs, or “cognitive appraisals” determine their achievement emotions. He notes that two of those appraisals, self-efficacy and task value are critical in achievement and that they’re reciprocal. Artino concedes that while research supporting Pekrun’s theory is limited in the online sphere, the research that has been completed suggests support for the linkage between emotions and adaptive behaviors.

Artino’s model suggests that the interaction of contextual features of the online environment, personal perceptions, personal behaviors and academic outcomes create a dynamic framework in which students utilize, modify and leverage self-regulatory behaviors. He contends that the motivational beliefs of self-efficacy and task value provide students with a mechanism for judging the value of

topics or activities, make decisions about their ability to effectively deal with the information and then create adaptive behaviors for performance. The levels at which they execute those behaviors contribute to their achievement emotions, and forming a loop of behaviors and strategies which constantly adjusts to situations the students encounter (Artino, 2008a).

While Artino's model does provide a robust framework for analysis, the emphasis on the contextual features of the environment exposes one weak area of Artino's model. In his model, he discusses Joo, Bong and Choi (2000) who noted that self-efficacy wasn't limited to the course itself, but carried over to the Internet use as well. This suggests that while students do perceive and evaluate the instructional context, they may also make judgments about the physical environment or "hardware layer". As an example, Tallent-Runnels et al (2006) noted that some faculty "believed they had lost students because of technical problems" (p. 114). Likewise, others (Muilenburg & Berge, 2005) have found that while technical problems were not an overwhelming barrier, they provided a barrier to online learning nonetheless. It may be worth considering then, if technical problems and other administrative issues may be a contributing factor to the personal perceptions of students and should play a role in the model.

Summary

This chapter reviewed the foundational and current literature relevant to this study. A review of the GMAT, the history and evolution of the MBA degree and the development and growth of online learning and self-regulation was provided. The chapter concluded by providing an overview of Artino's (2008a) Conceptual Model of Self-Regulation Online. The following chapter, Chapter 3 will discuss the methods and procedures used to conduct the study.

Chapter 3

Methods And Procedures

The purpose of this study was to determine if the Masters of Business Administration (MBA) program admission requirements of Graduate Management Admissions Test (GMAT) total score, GMAT verbal score and years of work experience of self-selecting online MBA students were predictive of their motivational beliefs and self-regulation strategies. This chapter presents an overview of the methods and procedures used to conduct the study and will review the research questions, provide a description of the participants, discuss the setting of the study, and present the instrument utilized to conduct the survey. The predictor and criterion variables, research design, the procedures utilized to conduct the study and the assumptions and limitations of the study will also be reviewed.

Research Questions

Chapter 1 provided a statement of the problem guiding this study and defined applicable terms. Chapter 1 also posed six research questions to be addressed by this study, they are:

1. Are the GMAT total scores of self-selected online MBA students a reliable predictor of their motivational beliefs of self-efficacy for learning and performance?

2. Are the GMAT total scores of self-selected online MBA students a reliable predictor of their motivational beliefs of task value?
3. Are the years of work experience of self-selected online MBA students a reliable predictor of their motivational beliefs of intrinsic goal orientation?
4. Are the years of work experience of self-selected online MBA students a reliable predictor of their motivational beliefs of extrinsic goal orientation?
5. Are the years of work experience of self-selected online MBA students a reliable predictor of their learning strategy of critical thinking?
6. Are the GMAT verbal scores of self-selected online MBA students a reliable predictor of their learning strategy of critical thinking?

Participants

The participants for this study consisted of 130 ($n = 130$) self-selected MBA students enrolled in an online MBA program accredited by Association to Advance Collegiate Schools of Business (AACSB). The business school offering the Online MBA program is also nationally ranked and resides within a large public university in the Southwestern United States. Demographic information provided by participants at the time of the survey revealed the sample was 67.94%

male and 32.06% female. Ethnicity of the participants within the sample was reported as 83.97% Caucasian, 12.21% Asian, 2.29% Hispanic and 0.76% Native American; one respondent (0.76%) reported they were of unknown ethnic origin. The mean age of the participants in the sample was $M = 32.37$, mean years of work experience was $M = 10.95$, mean GMAT total score was $M = 593.23$ and their mean GMAT verbal score was $M = 34.75$.

Setting

The setting for this study was a nationally ranked, AACSB accredited business school within a large public university in the Southwestern United States. The business school offers undergraduate, Master of Business Administration (MBA) and Ph.D. graduate business education. The MBA program offers several delivery platforms designed in part to promote student success by tailoring program schedules and delivery methods to lifestyles and work schedules of students. The delivery platforms include; Full-time, Evening, Executive, Online and Custom Corporate MBAs. Both the Online and Custom Corporate platforms are delivered completely online. The Online MBA program is similar to the Evening MBA in that it accepts those who meet standard MBA admissions criteria, while the Custom Corporate MBA focuses on specific populations within individual corporations. The curriculum is standardized across

all MBA delivery platforms and no distinction is made between the platforms when the final degree is awarded.

The MBA program featured in this study is a 24 month, 48 credit-hour graduate management program. The program consists of 12 four credit-hour courses; each of the courses is six weeks long. Courses are delivered in succession over a 22 to 24 month period and students receive a one-week break between each course. The variance in completion time of the program is due to broader scheduling issues within the university and is not a limitation or constraint of the Online MBA program.

Each course is divided into a set of modules featuring a variety of course content and activities, the main component is text-based content developed from the faculty's traditional lecturing materials. Additional materials such as case studies, active discussion, team based work, collaboration and projects complete the course. The appearance, layout and organization of each online course is highly structured and provides students with a consistent experience across the duration of the program. Faculty members work with a team of course content developers to prepare their materials for online delivery. The course content developers edit the content and provide the necessary expertise and labor to tailor the materials for online use. The content is then augmented with videos, case studies, interactive

exercises, interactive charts and graphs and other materials designed to engage the students. The program has established rigorous internal standards for the development of online course materials, for example clip art and standard PowerPoint presentations are not used because they do not reach those quality standards. Each course is developed and taught by tenured faculty within the school most of whom are internationally recognized as leading researchers in their field, The online platform program does not utilize adjunct faculty, faculty associates or lecturers in the primary instructional role although they may be used to provide faculty with assistance when teaching large cohorts.

The program curriculum is predetermined and students move through the program as a cohort in lock step. The program does not have a residency requirement although students are required to attend the three-day orientation session at the start of the program. During the orientation, students are welcomed to the business school, and introduced to the support staff and faculty responsible for the delivery of the online program. They participate in a technology orientation and receive an overview of the technologies used to deliver the online courses and training when needed. During the orientation they are also organized into student teams, which they often remain with for the duration of the program. The program orientation also provides

students with the opportunity to interact with faculty and participate in experiential team activities. A two-day, second year orientation is offered by the program, but attendance is not mandatory.

Instrument and Data

All participants in this study were asked to complete an online version of the Motivated Strategies for Learning Questionnaire (MSLQ) to assess their motivational beliefs and self-regulation strategies. The predictor variables of GMAT total score; GMAT verbal score and years of work experience were drawn from admissions records. The data obtained from the MSLQ survey and the admissions records were used as a basis for answering the six research questions.

Motivated Strategies for Learning Questionnaire

The MSLQ (Pintrich et al., 1991) was used as the primary data collection tool for this study and was designed to assess the way college students leverage their motivational orientation and utilize learning strategies in college courses. The data gathered from the MSLQ served as the source of the criterion variables used for analysis in this study. The MSLQ is an 81 question self-report inventory consisting of 15 subscales divided into two sections, the sections are motivation and learning strategies. The motivation section contains the subscales of intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs, self-efficacy for learning and performance and test

anxiety. The motivation section is designed to assess a student's beliefs for success in their course, their goals and values and their anxiety about taking tests or assessments. The learning strategies section contains the subscales of rehearsal, elaboration, organization, critical thinking, metacognitive self-regulation, time and study environment, effort regulation, peer learning and help seeking. The learning strategies section was developed to assess a student's use of cognitive and metacognitive strategies while taking the course.

Participants rate each statement on the survey using a seven point Likert scale with 1 indicating the response "not at all true of me", through 7, which indicates the response "very true of me". Statements on the survey are worded both positively and negatively requiring reverse scoring of several survey items. The MSLQ was developed as a paper-based instrument but the nature of this study required that the instrument be modified for online delivery. Survey questions were not modified or reworded during the process and the instrument was coded for online use using the ColdFusion programming language and linked to a Microsoft SQL Server 7 database that recorded participants responses as they completed the web-based form. Duncan and McKeachie (Duncan & McKeachie, 2005) acknowledge that the MSLQ is most frequently used to evaluate specific courses and also note that online use of the instrument has become well established.

Predictor Variables

The predictor variables for this study were the MBA admissions criteria of GMAT total score, GMAT verbal score and years of work experience. The Graduate Management Admissions Test (GMAT) is a widely used criteria for business school admission (Hedlund et al., 2006) and is a computer-adaptive standardized test. The test is comprised of a quantitative section featuring a combination of problem solving and data sufficiency questions, a verbal section to assess grammar usage, and a critical reasoning and reading comprehension section. The total GMAT score ranges from 200 to 800 and the GMAT verbal score ranges from zero to 60 (GMAC, 2010). Business schools also use years of work experience as an additional admissions criteria although the minimum number of years desired varies across MBA programs (M. G. Daniel, 2007) and even across platforms within programs.

Design

This was an exploratory study, which utilized a correlation design methodology. Correlational design was chosen because it was the most appropriate measure to determine if relationships between MBA admissions requirements and motivational beliefs and self-regulatory strategies were present. While a correlational design can measure the relationship between two or more variables it cannot

establish a causal relationship between those variables nor can it establish the magnitude of the relationship (Shapiro, 2008). Statistical analysis in this study was performed using Predictive Analytics SoftWare Statistics (PASW), version 17.02. Prior to its acquisition by IBM in 2009, PASW was branded as the Statistical Package for the Social Sciences (SPSS).

Procedure

Research participants in this study were recruited in accordance with the applicable policies and procedures mandated by the university's Office of Research Integrity and Assurance. The participants in this study represent a convenience sample drawn from a pool of students enrolled in the Online MBA program at the time of this study. Solicitation for the study was conducted in the fifth week of the Organization Theory and Behavior course and took place through email. The solicitation process took place over 12 months as each cohort of students reached the appropriate place in the targeted course. The solicitation took place with the instructor's knowledge and consent and the instructor was notified prior to the email being sent to each cohort. Additionally, the instructor posted an announcement in the Blackboard Course Management System (CMS) to inform the students the forthcoming email solicitation was a legitimate study approved by the university and not spam. The email solicitation contained a request

for participation, and included an embedded link to the web-based survey instrument. Clicking on the link launched a web browser and brought participants to the informed consent page, which provided information about the purpose of the research and contact information for the researcher. Those choosing to participate in the study could continue to the instrument by clicking on a button labeled “I consent to participate in this survey”.

Of the 434 students solicited for participation over the 12 month period, 146 responded to the solicitation and consented to participate in the survey. Seven individuals reported technical problems when attempting to complete the online survey. Investigation revealed the technical problems reported by these individuals were related to security constraints in their corporate computing environment. They were unable to complete the survey and were removed from the list of participants. Another eight users consented to participate in the survey but failed to complete the survey instrument. Students enrolled in the Online MBA program are surveyed regularly about a variety of factors for quality control and other purposes and failure to complete the study questionnaire was attributed to survey fatigue (Porter, Whitcomb, & Weitzer, 2004). Because each of these participants abandoned the survey at a different place, several incomplete records of varying length were created. To preserve data integrity, the

incomplete responses submitted by these users was removed from the data set.

Data Analysis

Datasets for this study were constructed using Structured Query Language (SQL) to manipulate the data and group survey items into their appropriate subscales. Several items on the MSLQ require reverse scoring and SQL queries were also used to properly format the reversed items for analysis by subtracting the participants reported score from eight as directed in the manual accompanying the MSLQ (Pintrich et al., 1991). Data was also screened for missing values during this phase and because the web-based form was programmed to prevent participants from submitting empty values, missing values were not found and the data was deemed complete and satisfactory for analysis.

Each of the 15 subscales for the MSLQ instrument was evaluated using Chronbach's Alpha for internal consistency. The results are presented in Table 2 on page 56. Based on the results of the Chronbach's Alpha for internal consistency, a frequency analysis was conducted on each subscale reporting an alpha below $\alpha = .70$. The rationale for conducting a frequency analysis was to look for trends in the data that suggested study participants perceived a survey question

as something that might be limited to a physical classroom instead of the online environment.

Table 2
MSLQ Chronbach's Alpha for Internal Consistency

	α	M	Variance	SD
Intrinsic goal orientation	.68	22.34	8.37	2.90
Extrinsic goal orientation	.60	19.39	19.11	4.37
Task value	.85	35.22	16.52	4.06
Control of learning beliefs	.69	23.31	11.30	3.36
Self-efficacy	.89	48.10	29.53	5.43
Test anxiety	.82	15.93	50.34	7.09
Rehearsal	.63	13.16	19.70	4.44
Elaboration	.68	29.64	22.39	4.73
Organization	.75	15.62	27.15	5.21
Critical thinking	.84	23.93	31.18	5.58
Metacognitive self-regulation	.66	54.35	72.25	8.50
Time and study environment	.72	43.76	47.90	6.92
Effort regulation	.59	23.49	9.18	3.03
Peer learning	.64	12.26	16.13	4.02
Help Seeking	.62	14.58	22.00	4.69

As an example, question 33 on the instrument reads, “during class time I often miss important points because I’m thinking of other things”. The phrase “during class time” implies a traditional fixed classroom and synchronous interaction, and there was a concern this could potentially cause confusion because of a mismatch between the language on the survey and actual experience of the participants. The

online program under study is completely asynchronous which eliminated the possibility participants could have answered these questions from the point of view of a synchronous course component, for example, a webinar. Survey questions that trended 30% or more toward the negative end of the scale were then examined more closely. The survey statements were examined to determine if they should be omitted because of inconsistencies between language of the questions and actual experience. Closer scrutiny of these questions revealed this was not the case and none of the questions were eliminated from the survey.

Findings

Research Question 1

Participant's responses to the self-efficacy for learning and performance subscale of the MSLQ and GMAT total score were utilized to answer Research Question 1. A series of Pearson product-moment correlation coefficients were computed to determine if a relationship existed between each item in the self-efficacy subscale and GMAT total score. Questions 6, 15, 29 and 31 of the self-efficacy subscale of the MSLQ showed a positive correlation reporting ($r = .311, p < 0.05, r = .366, p < 0.05, r = .341, p < 0.05$ and $r = -.179, p < 0.05$) respectively. Questions 5, 12, 20 and 21 of the self-efficacy subscale showed very weak correlations. While overall results indicate the GMAT total score

is not a reliable predictor of self-efficacy, a closer evaluation of the questions that make up the self-efficacy for learning and performance subscale items indicate students are more interested in mastery of the content itself and minimally concerned about the aspects of performance within the class. Complete results are presented in Table 3.

Table 3
GMAT total scores and Self-efficacy

	Q5	Q6	Q12	Q15	Q20	Q21	Q29	Q31
GMAT	.109	.311**	.150	.366**	.114	.082	.341**	.179*
Sig. (2-tailed)	.216	.000	.088	.000	.198	.356	.000	.042

Note. * $p < .05$. ** $p < .01$.

Research Question 2

Participant's responses to the task value subscale of the MSLQ and GMAT total score were used to answer Research Question 2. A series of Pearson product-moment correlation coefficients were computed to determine if a relationship existed between each item in the task value subscale and GMAT total score. Results indicated very weak relationships with questions 10, 17 and 23 reporting negative correlations of $r = -.063$, $r = -.002$ and $r = -.063$ respectively. The task value subscale of the MSLQ focuses on the student's evaluation of the utility or importance of the course material. Results indicate GMAT

total scores are not a reliable predictor of task value. Questions 10 and 17 of the task value subscale directly ask about the importance and utility of the material in the course. The negative relationships may indicate that students are making broader assessments about the value of tasks within this course and evaluating them within the context of the entire MBA program. Another possible explanation is that students may place less value on theoretical aspects than they do on quantitative or analytical components of other courses. Complete results are presented in Table 4.

Table 4
GMAT total scores and Task Value

	Q4	Q10	Q17	Q23	Q26	Q26
GMAT total score	.125	-.063	-.002	-.063	.090	.088
Sig. (2-tailed)	.157	.474	.979	.474	.308	.365

Note. * $p < .05$. ** $p < .01$.

Research Question 3

Participant's responses to the intrinsic goal orientation subscale of the MSLQ and years of work experience were utilized to answer Research Question 3. A series of Pearson product-moment correlation coefficients were computed to determine if a relationship existed between each item in the intrinsic goal orientation subscale and years of work experience. The relationships between intrinsic goal

orientation subscale of the MSLQ and years of work experience revealed no significant relationships and all relationships were found to be very weak. The intrinsic goal orientation subscale of the MSLQ measures a student's inherent interest in the task and their view that the task itself is enjoyable or challenging (Vansteenkiste, Timmermans, Lens, Soenens, & Van den Broeck, 2008). Results indicate that years of work experience are not a reliable predictor of intrinsic goal orientation in Online MBA students. Compete results are presented below in Table 5.

Table 5

<i>Years of Work Experience and Intrinsic Goal Orientation</i>				
	Q1	Q16	Q22	Q24
Years of work experience	.081	.093	.163	.103
Sig. (2-tailed)	.358	.294	.064	.256

Note. * $p < .05$. ** $p < .01$.

Research Question 4

Participant's responses to the extrinsic goal orientation subscale of the MSLQ and years of work experience were utilized to answer Research Question 4. A series of Pearson product-moment correlation coefficients were computed to determine if a relationship existed between each item in the extrinsic goal orientation subscale and years of work experience. No significant relationships were found with most

more than half of the questions in this subscale reporting negative relationships. Questions 11, 13 and 30 reporting $r = -.107$, $r = -.084$ and $r = -.027$ respectively. Results indicate years of work experience are not a reliable predictor of extrinsic goal orientation. The extrinsic goal orientation subscale of the MSLQ focuses on measuring the students task participation as a means to an end and emphasizes rewards such as grades, or competitive aspects of performance. Results could potential indicate Online MBA students reject competitive aspects of performance within their courses. Complete results are presented in Table 6 below.

Table 6
Years of Work Experience and Extrinsic Goal Motivation

	Q7	Q11	Q13	Q30
Years of work experience	.004	-.107	-.084	-.027
Sig. (2-tailed)	.962	.228	.341	.761

Note. * $p < .05$. ** $p < .01$.

Research Question 5

Participant's responses to the critical thinking subscale of the MSLQ and years of work experience were used to answer Research Question 5. A series of Pearson product-moment correlation coefficients were computed to determine if the relationships between each item in the critical thinking subscale and years of work

experience. No significant correlations were found with all relationships reporting as very weak. Results indicate years of work experience are not a reliable predictor of critical thinking. The critical thinking subscale of the MSLQ measures student's ability to apply prior knowledge to solve new problems. Results of this study could potentially indicate students are not viewing course content as a starting point or basis for scaffolding new knowledge but simple a library of accumulated facts. Complete results are presented below in Table 7.

Table 7
Years of Work Experience and Critical Thinking

	Q38	Q47	Q51	Q66	Q71
Years of work experience	.052	.075	.121	.136	.142
Sig. (2-tailed)	.561	.393	.171	.123	.108

Note. * $p < .05$. ** $p < .01$.

Research Question 6

Participant's responses to the critical thinking subscale of the MSLQ and GMAT verbal scores were utilized to answer Research Question 6. A series of Pearson product-moment correlation coefficients were computed to determine if a relationship existed between each item in the critical thinking subscale and the GMAT Verbal Score. No significant correlations were reported with all relationships being very weak. Question 51 reported a negative correlation at $r = -$

.074. Question 51 asks students if they use course material as a starting point for their own ideas, the negative response could indicate they accept some course material as established fact. Complete results are presented in Table 8.

Table 8

GMAT Verbal Score and Critical Thinking

	Q38	Q47	Q51	Q66	Q71
GMAT Verbal score	.161	.107	-.074	.151	.032
Sig. (2-tailed)	.067	.225	.401	.087	.715

Note. * $p < .05$. ** $p < .01$.

Assumptions and Limitations

The purpose of this study was to determine if the MBA program admissions requirements of GMAT total score, GMAT verbal score the and years of work experience of self-selecting Online MBA students are predictive of their motivational beliefs and self-regulatory strategies. Data was collected during Organization Theory and Behavior, the second course in a series of twelve online courses. The following assumptions and limitations were part of the data collection and analysis process.

1. It was assumed the predictor variables of GMAT total score; GMAT verbal score and years of work experience, which were drawn from student records, were correct and current.

2. Demographic information was self-reported by the participants and it was assumed they reported the information accurately.
3. Participants did not face a time limitation while completing the MSLQ. It was assumed that they responded to each survey item honestly and within the context of the course they were participating in.
4. The MSLQ was originally designed for paper distribution, the transition to the online environment may provide a limitation based on a mismatch between survey language and students perception.

Summary

This chapter presented an overview of the methods and procedures used to conduct the study. The research questions were reviewed, a description of the participants was provided, the setting of the study was discussed and the data collection instrument was described. This chapter also presented the collection methodology for the predictor variables, the research design, the procedures utilized for data analysis and then reviewed the assumptions and limitations of the study that were related to data collection and analysis. Chapter 4 will present detailed results of the analysis discussed in this chapter.

Chapter 4

Results

The purpose of this study was to determine if Masters of Business Administration (MBA) program admissions requirements of Graduate Management Admissions Test (GMAT) total score, GMAT verbal score and years of work experience were predictive of motivational and self-regulation strategies in self-selecting online MBA students. This chapter presents the results of this study.

The results presented in this chapter are based on an analysis of the responses by the study participants to the Motivated Strategies for Learning Questionnaire (MSLQ), predictor variables of GMAT total score, GMAT verbal score and years of work experience. All statistical analysis in this chapter was performed using Predictive Analytics SoftWare Statistics (PASW), version 17.02, formerly known as the Statistical Package for the Social Sciences (SPSS).

Data Screening

GMAT total score, GMAT verbal score, Years of work experience

The GMAT total scores and the GMAT verbal scores were visually inspected for missing or unreasonable values. Three of the 130 participants in this study lacked GMAT scores and the scores of the remaining 127 participants fell within the appropriate ranges dictated by the Graduate Management Admissions Council (GMAC, 2010), the

non-profit organization that is the owner and administrator of the GMAT. The Online MBA program in this study has the discretion of waiving the GMAT admissions requirement for a variety of reasons. As it pertains to this study, the GMAT requirement may be waived in cases when the student is an upper-level manager or executive in a Fortune 500 company. Additionally, when the student has more than ten years work experience and letters of commitment from their leadership team they are often viewed as having the work history and experience that exceeds the Online MBA programs requirements. The missing GMAT scores are the result of three participants who had the GMAT admissions requirement waived because they fit the preceding criteria.

To make a determination of what value should replace the three missing GMAT total scores and three missing GMAT verbal scores, the student's demographic information and final course grade were evaluated. Each of the three students had more than ten years work experience, received a final course grade of "A" in the course, and had an undergraduate or graduate GPA better than 3.0. This information indicated that each of the three participants fit the general profile of a student who would be expected to do well on the GMAT. Based on these criteria, a decision was made to replace the missing GMAT scores with the mean score of the remaining 127 participants. Years of

work experience is self-reported by participants on their admissions application and no missing values were found.

Motivated Strategies for Learning Questionnaire

The MSLQ was developed as a paper-based instrument and for the purpose of this study it was transitioned to the online environment using well-established web development methodologies. The language of the survey items was not changed and Duncan and McKeachie (Duncan & McKeachie, 2005) note that this approach to using the MSLQ has been taken in a variety of other studies including online, multimedia and computer based instruction. In preparing the MSLQ for online use in this study, standard web programming validation techniques were utilized to insure that participants could not submit null or empty values while taking the survey. Prior to data analysis, a Structured Query Language (SQL) script was run against that database containing the participant's responses to verify that it was free of missing values and none were found.

GMAT Score as a Predictor of Academic Success

A problematic issue currently facing institutions offering MBA degrees is continuing disagreement about the effectiveness of GMAT scores as a predictor of academic success. While the Graduate Management Admissions Council (GMAC) contends that GMAT scores provide a good predictor of success, especially when coupled with

undergraduate GPA (GMAC, 2010), others (M. G. Daniel, 2007; Hedlund et al., 2006) argue that the GMAT's predictive power is not consistent. While the predictive power of the GMAT is discussed in terms of academic success, and specifically successful completion of the MBA program; the practical reality is that when a student struggles in the MBA program the GMAT score plays a role in determining how to intervene.

Findings

Research Question 1

Research Question 1 asked “Are the GMAT total scores of self-selected online MBA students a reliable predictor of their motivational beliefs of self-efficacy for learning and performance?” This question focuses on the relationship between the students’ GMAT total score and their views of self-efficacy and expectancy of success. Self-efficacy indicates the participant’s appraisal of his or her own ability to master a task while expectancy relates to task performance. To answer this question, the relationships between GMAT total score and the participant’s responses to the self-efficacy for learning and performance subscale of the MSLQ were analyzed. The subscale statements appear on the survey as a 7-point Likert scale with responses ranging from 1 indicating “not at all true of me” to 7 indicating “very true of me”. The

statements that make up the self-efficacy for learning and performance subscale are provided in Table 9.

Table 9
Self-efficacy for Learning and Performance Subscale Statements

Q5	I believe I will receive an excellent grade in this class
Q6	I'm certain I can understand the most difficult materials presented in the readings for this class
Q12	I'm confident I can understand the basic concepts taught in this course
Q15	I'm confident I can understand the most complex material presented by the instructor in this course
Q20	I'm confident I can do an excellent job on the assignments and tests in this course
Q21	I expect to do well in this class
Q29	I'm certain I can master the skills being taught in this class
Q31	Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class

Reliability analysis of the subscale reported as very good with a Chronbach's Alpha of $\alpha = .89$. Frequencies and descriptive information for the participant's responses on the subscale are presented in Table 10. A frequency analysis of items in the subscale indicated that participants trended towards affirmative responses to statements on the self-efficacy for learning and performance subscale.

Table 10
Self-efficacy for Learning and Performance

	Frequencies			Descriptive					
	Min	Max	Mode	M	SD	Variance	Skewness	Kurtosis	
Q5	3	7	6	5.75	0.88	0.78	-0.46	-0.06	
Q6	1	7	6	5.84	1.15	1.31	-1.62	4.34	
Q12	4	7	7	6.49	0.66	0.44	-1.11	0.78	
Q15	1	7	6	5.87	1.01	1.03	-1.81	6.83	
Q20	2	7	6	5.95	0.95	0.90	-1.13	1.97	
Q21	4	7	6	6.22	0.74	0.55	-0.62	-0.14	
Q29	3	7	6	6.02	0.87	0.76	-0.89	1.07	
Q31	2	7	6	5.95	0.85	0.73	-1.21	3.44	

The skewness of all items in the self-efficacy for learning and performance subscale was outside of the normal range and all items were negatively skewed. The normal range of skewness for this subscale was $-.42$ to $.42$ and the range reported was from $-.46$ to -1.81 , item 15 as the most negatively skewed. Items 5, 12 and 21 fell within the normal range of kurtosis for this subscale ($-.84$ to $.84$) and the remaining items, 6,15,20,29 and 31 were leptokurtic.

A Pearson product-moment was calculated to evaluate the relationship between GMAT total score and self-efficacy for learning and performance. Findings indicated that significant relationships existed between GMAT total score and four of the items on the subscale. Questions 6, 15, 29 and 31 showed a positive correlation reporting $r = .311, p < 0.01, r = .366, p < 0.01, r = .341, p < 0.01$ and $r = -.179, p < 0.05$ respectively. Findings suggest that while participants

are confident in their ability to understand the basic concepts in the course and execute assignments and assessments competently, they appear more focused on the mastery of skills and more difficult functional aspects of the material.

Based on the results of this analysis, Research Question 1 is partially supported. The results of the analysis indicate that participants in the study focus on mastery of the content rather than process. Participants' responses to the self-efficacy for learning and performance subscale trended to the affirmative, indicating that self-efficacy strategies are in use by the participants. Despite this, GMAT total score was not a reliable predictor of their use.

Research Question 2

Research Question 2 asked "Are the GMAT total scores of self-selected online MBA students a reliable predictor of their motivational beliefs of task value?" This question focuses on the relationship between the student's GMAT total score and task value, which is the student's view of how useful or interesting a given task is. To answer this question, the relationships between GMAT total score and participants' responses to the task value subscale of the MSLQ were analyzed. The subscale statements appear on the survey as a 7-point Likert scale with responses ranging from 1 indicating "not at all true of

me” to 7 indicating “very true of me”. The statements that are included on the task value subscale are listed in Table 11.

Table 11
Task Value Subscale Statements

Q4	I think I will be able to use what I learn in this course in other courses
Q10	It is important for me to learn the material in this class
Q17	I am very interested in the content area of this class
Q23	I think the course material in this class is useful for me to learn
Q26	I like the subject matter of this course
Q27	Understanding the subject matter of this course is very important to me

Reliability analysis of the subscale reported very good reliability with a Chronbach’s Alpha of $a = .85$. Frequencies and descriptive information for the participant’s responses are presented in Table 12. The skewness of all items in the task value subscale was outside of the normal range and all items were negatively skewed. The normal range of skewness for this subscale was $-.42$ to $.42$ and the range reported was from $-.49$ to $-.89$, item 17 as the most negatively skewed. Items 4, 23, 26 and 27 fell within the normal range of kurtosis for this subscale ($-.84$ to $.84$) while the remaining items, 10 and 17 were leptokurtic. These results indicate that the majority of participants trended towards affirmative responses to statements on the task value subscale.

Table 12
Frequencies and Descriptive Statistics, Task Value

	Frequencies			Descriptive				
	Min	Max	Mode	<i>M</i>	SD	Variance	Skewness	Kurtosis
Q4	2	7	6	5.62	0.999	0.998	-0.49	0.119
Q10	3	7	6	6.00	0.807	0.651	-0.809	1.526
Q17	2	7	6	5.86	1.002	1.004	-0.891	1.135
Q23	4	7	6	6.02	0.797	0.635	-0.587	0.071
Q26	3	7	6	5.85	0.924	0.854	-0.661	0
Q27	3	7	6	5.88	0.854	0.729	-0.671	0.801

To determine the relationship between GMAT total score and task value, a Pearson product-moment was calculated. The findings indicated no significant relationships between GMAT total score and items on the task value subscale. Items 10 and 17 of the task value subscale revealed negative relationships, reporting $r = -.063$ and $r = -.002$ respectively. The items reporting negative relationships ask participants about the importance of the course material and if they find that material interesting. One possible explanation for the negative relationships may be the perception that this course focused on “soft skills” and that the content of the course may not have led to a concrete answer.

Based on the analysis of the data, Research Question 2 is not supported. While participants responded to the task value subscale of the MSLQ affirmatively, indicating that task value is a strategy in use,

GMAT total score was not predictive of the use of the motivational belief of task value. Further, negative relationships in the data imply that while the students found the material in this course important to learn, it was not overly important to them, and could have lowered the value of other tasks in the course.

Research Question 3

Research Question 3 asked, “Are years of work experience of self-selected online MBA students a reliable predictor of their motivational beliefs of intrinsic goal orientation?” This question focuses on the relationship between the students’ years of work experience and their motivational belief of intrinsic goal orientation as reported on the MSLQ. Intrinsic goal motivation represents the students’ perception that they’re participating out of curiosity, a sense of challenge, or for mastery; it is a view that focuses on the task as the ends rather than the means. To answer question 3, the relationship between years of work experience and participant’s responses to the intrinsic goal orientation subscale of the MSLQ were analyzed. The subscale statements appear on the survey as a 7-point Likert scale with responses ranging from 1 indicating “not at all true of me” to 7 indicating “very true of me”. The statements that make up the intrinsic goal orientation subscale of the MSLQ are displayed in Table 13.

Table 13

Intrinsic Goal Orientation Subscale Statements

Q1	In a class like this, I prefer course material that really challenges me so I can learn new things
Q16	In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn
Q22	The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible
Q24	When I have an opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade

Reliability analysis of the subscale reported modest reliability with a Chronbach's Alpha of $a = .67$. Frequencies and descriptive information for the participant's responses are presented in Table 14. The skewness of all items in the task value subscale was evaluated. Items 22 and 24 fell within the normal range of $-.42$ to $.42$ while items 1 and 16 fell outside of this range and were negatively skewed. The range of skewness displayed by the items in this subscale was from $-.35$ to -2.08 , item 16 being the most negatively skewed. Items 22 and 24 fell within the normal range of kurtosis for this subscale ($-.84$ to $.84$) while the remaining items, 1 and 16 were leptokurtic. The frequency analysis of this subscale indicted that participants trended towards affirmative responses to questions 1 and 16, and trended toward the center of the scale on questions 22 and 24. Questions 1 and 16 emphasize aspects of curiosity and challenging content while questions 22 and 24 ask about satisfaction.

Table 14

Frequencies and Descriptive Statistics: Intrinsic Goal Orientation

	Frequencies			Descriptives				
	Min	Max	Mode	<i>M</i>	SD	Variance	Skewness	Kurtosis
Q1	2	7	6	5.91	0.88	0.78	-1.32	3.38
Q16	1	7	6	6.15	0.97	0.94	-2.08	7.49
Q22	3	7	5	5.42	1.03	1.07	-0.35	-0.25
Q24	1	7	5	4.86	1.17	1.36	-0.41	0.32

To determine the relationship between years of work experience and intrinsic goal orientation, a Pearson product-moment was calculated. The findings indicate no significant relationships between years of work experience and intrinsic goal orientation.

The results of the analysis for Research Question 3 indicate that there is no support for years of experience as a predictor of intrinsic goal motivation. While their responses to the MSQI indicate that participants in this study are leveraging the motivational belief of intrinsic goal orientation, the data doesn't support the implication that it's developed as a part of their experience working in their chosen occupation. In this case the negative response to question 24 may indicate a lack of choice rather than a lack of motivation, as alternative assignments were not available to choose from in this course.

Research Question 4

Research Question 4 asked, "Are Years of work experience of self-selected online MBA students a reliable predictor of their

motivational beliefs of extrinsic goal orientation?” This question focuses on the relationship between the students’ years of work experience and their motivational belief of extrinsic goal orientation as reported on the MSLQ. As defined by the MSLQ, extrinsic goal motivation is the students’ perception that their participation is motivated by external reasons rewards such as grades, performance, peer evaluation or competition. The extrinsic goal orientation perspective views the completion of learning tasks across the course as a means to an end.

To answer question 4, the relationship between years of work experience and participant’s responses to the extrinsic goal Orientation subscale of the MSLQ were explored. The subscale statements appear on the survey as a 7-point Likert scale with responses ranging from 1 indicating “not at all true of me” to 7 indicating “very true of me”. The statements that are included in the extrinsic goal orientation subscale of the MSLQ can be found in Table 15.

Table 15
Extrinsic Goal Orientation Subscale Statements

Q7	Getting a good grade in this class is the most satisfying thing for me right now
Q11	The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade
Q13	If I can, I want to get better grades in this class than most of the other students
Q30	I want to do well in this class because it is important to show my ability to my family, friends, employer or others

Reliability analysis of the extrinsic goal orientation subscale reported moderate reliability, with a Chronbach's Alpha of $a = .59$. While this value is somewhat weak, the weakness may be due to the nature of the statements on the subscale. All four statements imply satisfaction based on personal achievement or competition with other students in the course. Many MBA programs, including the one currently under study, create student teams and emphasize a collaborative environment in which the grade of the individual is tied to the efforts of the team.

Frequencies and descriptive information for the participant's responses are presented in Table 16. Item 11 reported normal skewness falling within the range of $-.42$ to $.42$ with items 7, 13 and 30 negatively skewed. The items in this subscale reported a range of range from -1.06 to $.07$, item 13 was the most negatively skewed. All four of the items on the extrinsic goal orientation subscale fell within the normal range of kurtosis with no platykurtic or leptokurtic items observed. The frequency analysis of items in the subscale indicated that participants trended towards the center of the scale on questions 7 and 11 and towards the affirmative portion of the scale on questions 13 and 30. Question 30 attempts to uncover attitudes about extrinsic goals as they relate to rewards, in this case, grades. A factor that has to be considered in the context of this study is that answers to this question

may have skewed to the positive because of external factors related to employment. Analysis of question 13 suggests that while portions of their grades are tied to performance in student teams, MBA students remain highly competitive.

Table 16

Frequencies and Descriptive Statistics: Extrinsic Goal Orientation

	Frequencies			Descriptives				
	Min	Max	Mode	<i>M</i>	SD	Variance	Skewness	Kurtosis
Q7	1	7	5	5.04	1.43	2.04	-0.67	0.21
Q11	1	7	4	4.05	1.71	2.92	0.07	-0.71
Q13	1	7	7	5.49	1.62	2.62	-1.06	0.42
Q30	1	7	6	4.81	1.73	3.01	-0.59	-0.56

To determine the relationship between years of work experience and extrinsic goal orientation, a Pearson product-moment was calculated. The findings indicate no significant relationships between years of work experience and extrinsic goal orientation. The results of the analysis for Research Question 4 indicate that years of work experience were not a reliable predictor of extrinsic goal orientation. The participants' middle of the road responses to the extrinsic goal orientation subscale of the MSQI indicate that while extrinsic goal orientation is a motivational belief, in use by students it is not a primary driver in their learning experience. The MSLQ contextualizes several questions on this subscale as competitive attributes that could be problematic in MBA education, since team interaction is a focus.

Responses to question 30, which asks “I want to do well in this class because it is important to show my ability to my family, friends, employer or others”, may be skewed to the positive due to factors related to employer tuition reimbursement policies instead of individual goals or beliefs.

Research Question 5

Research Question 5 asked, “Are the years of work experience of self-selected online MBA students a reliable predictor of their learning strategy of critical thinking?” This question focuses on the relationship between the students’ years of work experience and their learning strategy of critical thinking. The critical thinking subscale of the MSLQ measures the degree to which students report applying previous knowledge to make critical evaluations, decision and solve new problems.

To answer question 5, an analysis was performed to explore the relationship between years of work experience and participants’ responses to the critical thinking subscale of the MSLQ. The subscale statements appear on the survey as a 7-point Likert scale with responses ranging from 1 indicating “not at all true of me” to 7 indicating “very true of me”. The statements that comprising the critical thinking subscale of the MSLQ can be found in Table 17.

Table 17

Critical Thinking Subscale Statements

Q38	I often find myself questioning things I hear or read in this course to decide if I find them convincing
Q47	When a theory, interpretation, or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence
Q51	I treat the course material as the starting point and try to develop my own ideas around it
Q66	I try to play around with ideas of my own related to what I am learning in this course
Q71	Whenever I read or hear an assertion in this class, I try to think about possible alternatives

Reliability analysis of the Critical Thinking subscale reported very good reliability with a Chronbach's Alpha of $a = .84$. An examination of skewness and kurtosis revealed that item 38 fell within the normal range of skewness ($-.42$ to $.42$) with items 47, 51 66 and 71 reporting as negatively skewed. The range of skewness for the items in this subscale was $-.37$ to -1.06 , item 66 was the most negatively skewed. Item 66 was slightly leptokurtic while all other items in the subscale fell within the normal range of kurtosis ($.84$ to $.84$).

The statements on the critical thinking subscale emphasize applying previous knowledge to the content being delivered in the course to create synthesis allowing students to expand what's being learned and more deeply evaluate or interpret the material. Frequencies and descriptive information for the participant's responses are presented in Table 18.

Table 18

Frequencies and Descriptive Statistics: Critical Thinking

	Frequencies			Descriptives				
	Min	Max	Mode	<i>M</i>	SD	Variance	Skewness	Kurtosis
Q38	1	7	5	4.38	1.59	2.52	-.37	-.52
Q47	1	7	5	4.98	1.36	1.85	-.90	.78
Q51	1	7	5	4.53	1.45	2.10	-.77	.24
Q66	1	7	6	5.28	1.37	1.88	-1.01	.97
Q71	1	7	5	4.76	1.39	1.92	-.66	.01

To determine the relationship between years of work experience and critical thinking, a Pearson product-moment was calculated. The findings indicate no significant relationships between years of work experience and critical thinking. Participants' responses to the critical thinking subscale of the MSLQ trended toward the positive but were not completely consistent with the perception of MBA students as self-assured over achievers.

The analysis of the data for Research Question 5 indicates that using years of work experience as a reliable predictor for the learning strategy of critical thinking is not supported. While their responses to the MSQ indicate that participants' in this study are leveraging critical thinking skills, the data does not support the assumption that critical thinking skills are transposed from the work environment to the learning environment.

Research Question 6

Research Question 6 asked, “Are the GMAT verbal scores of self-selected online MBA students a reliable predictor of their learning strategy of critical thinking?” This question focuses on the relationship between the student’s GMAT verbal score and their use of the learning strategy of critical thinking as reported on the critical thinking subscale of the MSLQ. The critical thinking subscale of the MSLQ assesses critical thinking by presenting statements that focus on how a student applies previous knowledge to new situations for evaluation, decision-making and problem solving. The verbal section of the GMAT, from which the score under discussion is derived, purportedly measures critical reasoning by presenting an argument that potential students are then asked to analyze. Based on their analysis, the test then asks them to identify assumptions, draw conclusions and recognize strengths and weaknesses of the argument.

To answer question 6, the relationships between GMAT verbal score and participants’ responses to the critical thinking subscale of the MSLQ were explored. The subscale statements appear on the survey as a 7-point Likert scale with responses ranging from 1 indicating “not at all true of me” to 7 indicating “very true of me”. The statements that comprise the critical thinking subscale of the MSLQ

can be found in Table 17 on page 81. As reported in the response to question 5, the reliability analysis of the critical thinking subscale reported a Chronbach's Alpha of $a = .84$. The frequencies and descriptive information for the participant's responses to the critical thinking subscale are presented in Table 18.

To examine the relationship between GMAT verbal score and critical thinking, a Pearson product-moment was calculated. The findings indicate no significant relationships between GMAT verbal score and critical thinking with question 51 reporting a negative relationship of $r = -.07$. Students were solicited to participate in this study during Organization Theory and Behavior, a course in which they learn to develop skill needed to function effectively in an organizational environment.

Analysis of the data for Research Question 6 revealed no support for GMAT verbal score as a predictor of critical thinking. While participants positive responses to the critical thinking subscale of the MSLQ revealed that critical thinking is a learning strategy in use by participants in this course, it does not appear to be deeply used to evaluate content related to "soft skills". The negative relationship discovered in question 51 may provide an additional indication that MBA students are driven towards analysis and mastery in the

quantitative realm of corporate financials rather than the behavioral aspects of the organization itself.

Summary

The purpose of this study was to determine if the MBA program admissions requirements of GMAT total score, GMAT verbal score and years of work experience were predictive of motivational beliefs and self-regulation strategies in self-selecting online MBA students. This chapter presented the results of the analysis which indicate that overall, the relationships between admissions requirements and self-regulation are minimal and that MBA admissions requirements are not a predictor of the use of motivational beliefs and self-regulatory strategies. The results of the analysis presented in this chapter will be discussed in detail in Chapter 5.

Chapter 5

Discussion

This study examined whether the MBA program admissions requirements of GMAT total score, GMAT verbal score and years of work experience are predictive of motivational and self-regulation strategies in self-selecting online MBA students. Self-regulation is a critical component of student success in online programs because the diffuse, asynchronous format of online learning requires that students regulate their academic performance. Students must set goals for their learning, monitor their performance, regulate and control their cognition and function within the contextual boundaries and features of the learning environment to achieve success (Boekaerts & Cascallar, 2006; Boekaerts et al., 2000). This chapter contains a discussion of the key findings and implications of the study, including an overview, a detailed discussion of each research question and a discussion of the relationship between the study and the conceptual model presented by Artino (Artino, 2008a). Additionally, implications of the findings, limitations of the study and directions for future research will be presented.

Overview of the Study

The study was conducted at a nationally ranked and AACSB accredited business school located within a large public university in

the Southwestern United States. The study surveyed 130 self-selected MBA students that were enrolled in the online platform of the school's MBA program. Data was collected using a web-based version of the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich et al., 1991). The predictor variables of GMAT total score, GMAT verbal score and years of work experience were collected from admissions records. Data analysis was performed using Predictive Analytics SoftWare Statistics (PASW), version 17.02, formerly known as the Statistical Package for the Social Sciences (SPSS). Data analysis consisted of a series of Pearson product-moments that examined the relationships between variables. The results of the data analysis were discussed in detail in Chapter 4.

Research Questions

This study focused on six research questions. They were:

1. Are the GMAT total scores of self-selected online MBA students a reliable predictor of their motivational beliefs of self-efficacy for learning and performance?
2. Are the GMAT total scores of self-selected online MBA students a reliable predictor of their motivational beliefs of task value?
3. Are the years of work experience of self-selected online MBA students a reliable predictor of their motivational beliefs of intrinsic goal orientation?

4. Are the years of work experience of self-selected online MBA students a reliable predictor of their motivational beliefs of extrinsic goal orientation?
5. Are the years of work experience of self-selected online MBA students a reliable predictor of their learning strategy of critical thinking?
6. Are the GMAT verbal scores of self-selected online MBA students a reliable predictor of their learning strategy of critical thinking?

While the research questions in this study focused on the motivational beliefs and self-regulation strategies of self-efficacy, task value, intrinsic and extrinsic goal orientation and critical thinking, participants in the study completed the entire MSLQ.

Research Question 1

Research Question 1 asked if GMAT total score was a reliable predictor of the motivational belief of self-efficacy for learning and performance. The self-efficacy subscale of the MSLQ was designed to assess the motivational components of expectancy for success and self-efficacy (Pintrich et al., 1991). The expectancy component of the subscale is designed to assess the student's expectation of task performance while questions related to self-efficacy are a self-appraisal of one's ability to master a task (Pintrich et al., 1991). Data analysis revealed a significant relationship between four of the eight items on

the self-efficacy for learning and performance subscale (statements 6, 15, 29, 31) and the predictor variable of GMAT total score.

The survey statements exhibiting a positive relationship on the self-efficacy subscale indicate that students are confident in their ability to master the material being presented in the course. Their confidence is not only consistent with the mythology of MBA's as driven overachievers but also implies that they are aware of the contextual features of their learning environment. The pattern of responses on the self-efficacy subscale is consistent with the conceptual model offered by Artino (Artino, 2008a). While only four of the eight items on this subscale showed a significant relationship to the predictor variable, across the board participant's responses to statements on the subscale trended towards the positive. The results indicate that while GMAT total score is not a reliable predictor of self-efficacy, the participants in this study view their performance as highly effective.

Their confidence in their ability to effectively engage and master the content within the course is supported by the positive relationships discovered in the analysis of this subscale. Question six asked, "I'm certain I can understand the most difficult material presented in the readings for this course". Prior to beginning the online MBA program, students participated in a three-day, face-to-face orientation and

during this orientation they were provided with training on how to access the readings for each course. The online program in this study uses XanEdu course packs that include readings, case studies and custom textbooks in a digital format. Course packs are created by faculty who select readings and other materials from XanEdu's website. XanEdu then performs copyright clearance and creates a digital package of materials that are specifically tailored to the individual course. During the orientation faculty emphasize the importance of the readings and students are made to understand that the readings can be complex and technically dense. The orientation serves several important functions in the context of the online program. The orientation experience includes faculty introductions, team building exercises and an introduction to the technology used in the program (Kanuka & Jugdev, 2006). While each of these functions is important in itself, the broader role of the orientation is to prepare students to operate within the Blackboard Course Management System and to access the contextual features of the learning environment as discussed in Artino's (2008a) conceptual model.

Ninety-three percent of the participants responded positively to question six, indicating an understanding that the readings are a significant part of the course and that they represent an important part of the learning task. By providing a face-to-face orientation, the

students had been prepared for an important aspect of the course that is directly tied to contextual aspects. The readings link students to the contextual features of their learning environment and stressing the importance of those readings helped to set students personal perceptions of those components in the course. In his conceptual model, Artino notes that the contextual features of the learning environment influence beliefs, emotions and academic behaviors (Artino, 2008a).

Like question six, question 15 also inquires about course content by asking, “I’m confident I can understand the most complex material presented by the instructor in this course”. In this question goal mastery is implied as it was in question six, but the source of knowledge transfer is moved from the readings to the instructor. A larger percentage of participants responded positively to this question with 96.2% trending to the positive side of the scale. The way in which students responded to this question reveals that students perceive that interaction with the faculty member presents better opportunities for knowledge gain. This difference in perception between readings and interaction with the faculty also provides additional evidence that “instructional contexts are perceived and evaluated by students” (Artino, 2008a).

Question 29 addressed self-efficacy asking participants if they felt they could master the skill being taught in class. Question 31

addressed expectancy and asked if students thought they would do well given the difficulty of the class, the instructor and their skills. Taken together the responses to these questions suggest that not only do students have an expectancy of success, but that mastery of the content is a higher priority than performance in the course.

Research Question 2

Research Question 2 asked if GMAT total score was a reliable predictor of the motivational belief of task value. Task value has been identified as the extent to which students find a task important or interesting and the degree of utility with which they view the task (Eccles & Wigfield, 2002). The task value subscale of the MSLQ was designed to assess the student perceptions of the course material itself in terms of interest, importance and utility (Pintrich et al., 1991). Analysis of the data found no significant relationships between GMAT total score and the task value subscale of the MSLQ. The GMAT is designed to measure “verbal, mathematical and analytical writing skills that have been developed over a long period of time through education and work” (GMAC, 2010). Because the MSLQ is designed to assess motivational orientation and learning strategies in a given course, it’s highly likely that the absence of significant relationships is due to a “mismatch”. The GMAT purports to measure a variety of analytical skills while the Organization Theory and Behavior course

the students were participating in when they completed the survey is subjective in nature. Despite the absence of significant relationships, data indicates that students are leveraging the motivational belief of task value in evaluating the importance and utility of the course material.

Across the subscale, participants consistently trended toward the positive with all statements reporting a mode of six on a seven-item Likert scale. Although the trending of the responses was consistently positive, some statements within the subscale demonstrated that some students viewed the utility of the course with some uncertainty. Statement four of the subscale asked, “I think I will be able to use what I learn in this course in other courses”. While 85.3% of participants responded positively to the question, 13.8% responded with a neutral answer indicating an uncertainty about how the content of this course fits into the structure of the MBA curriculum itself. Despite this uncertainty, their responses to all other items in the task value subscale demonstrate that the students understand that the material is important.

In the context of this subscale, statement 27, which states, “Understanding the subject matter of this course is very important to me”, attempts to uncover student’s subjective judgments about the value of the course material. In the broader context of how participants

responded to the MSQL however, an argument could be made that students are interpreting this question not as a value judgment of the content, but as a self-efficacy judgment of themselves, further indicating a desire for mastery of the course content. While the GMAT total score was not predictive of task value the participants in the study are clearly leveraging their task value beliefs. A close examination of the results, however, indicates that while students may have questions about the importance of the information and the course itself they're still committed to mastering the information.

Although these results indicate a seeming disparity in the student's task value beliefs, the apparent desire for mastery remains and appears to be balanced between concerns about the importance and utility of the course suggesting that students are using adaptive self-regulatory strategies. While Shunk (2005) notes that more research is needed to explore how adaptive strategies are used, one interpretation could be that students are thinking about task value beyond the individual course and viewing it more strategically. The MSLQ is designed to measure motivational beliefs in an individual course but students may be making judgments from the perspective of performance within the online MBA program as a whole. While the nature of research to date makes a definitive conclusion impossible, the evidence from this research question suggests that the four

interactive components discusses in Artino's (2008a) model are interacting as argued.

Research Question 3

Work experience is a critical component of MBA admissions requirements and the desired values for this requirement can vary across platforms. For example, three to five years of work experience may be desired for an Evening MBA program while ten to twelve years may be preferred for an Executive MBA program. While the MBA degree conferred at the end of the program is the same for both for platforms, the level of detail and depth of discussion with each course varies from platform to platform. The detail and depth of these discussions is often based on the work experience of the students and their positions within their organizations.

Question 3 asked if years of work experience were a reliable predictor of their use of the motivational belief of intrinsic goal orientation. The question was based on GMAC's assertion that the GMAT measures "verbal, mathematical, and analytical writing skills that have been developed over a long period of time through education and work" (GMAC, 2010). The implicit argument by GMAC is that work experience is a critical factor that plays a role in an individual's analytical and critical reasoning capabilities. The mean years of work experience for the participants in the study was 10.96 ($M = 10.96$)

years, which is higher than a comparable group of students in the evening MBA program.

Despite the higher levels of work experience, findings indicate that years of work experience is not a reliable predictor of the participant's use of the motivational belief of intrinsic goal motivation. Intrinsic motivation is defined as "the doing of an activity for its inherent satisfactions rather than for some separate consequence" (Ryan & Deci, 2000). The intrinsic goal orientation subscale of the MSQ assesses the students' perception of why they're engaged in a particular learning task, viewing the task as an end rather than the means to an end and views the student's goals in terms of challenge, mastery and curiosity (Pintrich et al., 1991).

Unlike the self-efficacy and task value subscales, responses to the items in this subscale were not uniformly positive. The responses to statement 24 which asked, "When I have the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade" were understandable. In this particular course students were not presented with the opportunity to choose assignments. Notable, however, is that almost 30.8% did respond positively raising questions about students' thinking beyond the course itself and interpreting the question in terms of the overall program.

Statements one and 16, which asked about course material being challenging and raising their curiosity, trended towards the top of the scale. Like the results on the self-efficacy and task value subscales, these results tend to imply that students are more interested in mastery of the content instead of personal satisfaction. Statement 22 however, seems calls this into question when it asks “The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible”. More than fifty-one percent (51.5%) of the participants responded negatively or neutrally to this statement. An explanation for this may be that the course content is “fuzzy”. Organization Theory and Behavior deals with organizational and personal dynamics and often doesn’t provide neat, quantifiable answers like a statistics course. While the content can arouse curiosity and be challenging, understanding the content in the context of this class is a continuous process. Another explanation may be directly related to the years of work experience of the participants and a perception gap between academic theory and their practice as working professionals. A final explanation for this seeming disparity may be found in the nature of the class, which relies heavily on discussion boards structured and guided by the instructor. Ryan and Deci (Ryan & Deci, 2000) note when student autonomy is not well supported, students lose initiative and learn less effectively. Given the contrast

between statements one, 16 and 22 this might be the more reasonable explanation. Ryan and Deci (2000) note that autonomy is especially important for learning when conceptual and creative processing is required.

While years of work experience was not a reliable predictor of intrinsic goal orientation, results from the MSQ indicate that it is actively being used by students, although more moderately. While students report that they want the course content to be challenging and arouse their curiosity, nuance is not a high priority. While there are several possible explanations for the gap, the results do fit within Artino's (2008a) conceptual model in that the students' perceptions of the instructional contexts are interacting with the online learning environment to modify their use of learning strategies. While this reaffirms the notion that "student's motivations and emotions change from course to course" (Boekaerts & Cascallar, 2006), it continues to raise questions about how students perceive the course in the overall context of the online program.

Research Question 4

Research Question 4 addressed the relationship between work experience and extrinsic motivation by asking if work experience was a reliable predictor of extrinsic motivation. Ryan and Deci (2000) place extrinsic motivation in context by stating that as a construct, it

contrasts with intrinsic motivation in that the task becomes instrumental. The MSLQ measures extrinsic goal orientation by posing statements that assess the student's participation in terms of grade, rewards, performance and competition (Pintrich et al., 1991).

Analysis of the extrinsic goal orientation revealed no significant relationships, however three of the four questions on the subscale exhibited negative relationships. Unlike most of the findings thus far that trend towards the positive, the responses to this subscale were more widely distributed. Statement 11, which addressed overall GPA and getting a good grade in the class, exhibited a normal distribution across the scale with 61.55% of participants responding negatively or with a neutral answer. Statement 11 also exhibited a negative relationship during analysis ($r = -.107$) and results seem to imply that GPA and course grade are not very important in terms of extrinsic motivation.

Of particular note on this subscale, is the contrast between statements 11, and 13. While the responses to statement 11 seemingly imply that grades are not important, the responses to statement 13 add the caveat, "as long as I do better than everyone else." Statement 13 accesses the competitive aspects of extrinsic motivation stating "If I can, I want to get better grades in this class than most of the other students". Statement seven, which also asks about grades but from the

perspective of satisfaction, also displayed a lower positive response rate, emphasizing that grades in themselves were not the most important factor in the class. Statement 30, which frames individual performance in terms of being evaluated by others states, “I want to do well in this class because it is important to show my ability to family, friends, employer, or others” the responses are moderately skewed and seem to reflect that this element is important to more than 50% of the participants. The context of statement 30, which emphasizes achievement in terms of a external stakeholders, i.e. family, friends, employers, etc. may hold the key to explaining these results.

In explaining extrinsic motivation, Ryan and Deci (2000) argue that varying levels of instrumentality are operationally active. They provide the example of a teen who completes assignments to avoid sanctions and a student who performs the work because it's valuable for their career. Both students are extrinsically motivated, but for different reasons. They go on to cite Organismic Integration Theory, which discusses extrinsic motivation as a continuum with contextual factors that operate along the continuum (Deci & Ryan, 1985). An evaluation of the responses to the extrinsic motivation subscale of the MSLQ would place participants on the continuum between external regulation and introjection. External regulation focuses on extrinsic

rewards or punishments, while introjection focuses on approval from others and ego involvement.

If the results were interpreted along Ryan and Deci's continuum it would seem that students are not invested in the class. Final course grades ($M = 91.44\%$) would indicate otherwise however, and the disparity may indicate that a broader view of the program as a whole is necessary. Thus far, the results of this study may imply the students view the program less as an academic undertaking and more in terms of a career development strategy. In this context the way in which the participants are responding may be more understandable. MBA programs are premium fee-based programs that present significant financial costs to the student. Many students however, are able to structure their participation in the program through cost sharing or reimbursement arrangements with their employer. Grades within the program then, become less important to students as a measure of academic achievement and more important as a requisite for financial compensation.

Research Question 5

Research Question 5 asked, "Are the years of work experience of self-selected online MBA students a reliable predictor of their learning strategy of critical thinking?" The underlying rationale for this question was GMAC's assertion that the analytical skills measured by

the GMAT are “developed over a long period of time through education and work”. GMAC does concede that the GMAT does not measure job skills or knowledge of business; their perspective is that critical reasoning skills develop as work experience is accumulated.

Critical thinking can be defined in a variety of ways, but Lipman argues that good critical thinking relies on criteria, is self-correcting and is sensitive to context (Lipman, 1988). The MSLQ evaluates critical thinking by asking the students the degree to which they report applying previous knowledge to solve problems, reach decisions and make critical evaluations (Pintrich et al., 1991). Analysis of the data revealed no significant relationships between work experience and the critical thinking subscale of the MSLQ. Based on these results, years of work experience were not a reliable predictor of the use of the self-regulatory learning strategy of critical thinking.

Business schools use work experience as a factor in admissions because of the belief that knowledge gained in industry provides students with the ability to “more readily see the relevance and the potential applications of the material” (Sulaiman & Mohezar, 2006). This belief is in line with Lipman’s assertion that critical thinking is sensitive to context, although it might be more appropriate to say that experience provides students with the conceptual framework necessary to understand the context. While work experience was not a reliable

predictor of the use of critical thinking strategies, responses to the critical thinking subscale of the MSLQ do indicate that students in this study are using critical thinking strategies.

Responses from participants trended more closely to the center of the statements in the critical thinking subscale and may indicate that their use of critical thinking is constrained or restricted. While the mean years of work experience was almost 11 years ($M = 10.6$), more than 58 of the participants had ten years or less. Courses within MBA programs often rely on student teams that work together to complete case studies, execute simulations, collaborate on assignments and collectively contribute to class discussions. Frequently, those students with more experience take on a leadership role for the team and while team composition was not examined in this study, strong, experienced leadership within student teams may obviate the need for extensive critical thinking from each individual.

As noted in the discussion of Research Question 4, students may view the MBA program more in terms of career development than an academic context. Their responses to statement 47, which asks, “When a theory, interpretation, or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence”, could provide additional clarification. While evaluating evidence to support a theory is a component of critical thinking, in the context of the survey

and at the broader level of the Online MBA program as a whole, the statement implies an academic connotation or scope. The responses to this statement clustered towards the center of the scale with 56.9% of participants providing a neutral response or one increment towards the positive or negative on the Likert scale.

Statement 51, “I treat the course material as a starting point and try to develop my own ideas around it”, provided a similar pattern of responses with more than 65.3% clustering around the center. While this would seem an additional indication that students are just trying to work through the material, the response patterns to this statement on the MSQ raises the question, are critical thinking skills being encouraged? Artino’s (2008a) model emphasizes that behaviors are influenced by the learning environment; and the compressed nature of the course, the geographical distribution of students and their teams, and the online environment may contribute to students working through the material in an axiomatic way.

While students may not be leveraging critical thinking skills in a robust way in the context of evaluating solutions to case studies, completing assignments or contributing to course discussions, they may be evaluating the ideas presented in the class as launching point for reflection and analysis. Responses to statements 66 and 71, which ask about playing around with their own ideas related to what’s being

learned and thinking about alternatives to assertions and conclusions in the class, trended toward the positive side of the response scale. Although statement 71 exhibited a positive trend, the response pattern still indicates some uncertainty and may again reinforce the possibility that students are having difficulty determining how the material in this particular course is relevant to them.

Research Question 6

Research Question 6 addressed the critical thinking subscale of the MSLQ as well, but asked, “ Are the GMAT verbal scores of self-selected online MBA students a reliable predictor of their learning strategy of critical thinking?” The rationale underlying this research question was the emphasis placed on critical reasoning in the verbal section of the GMAT. The verbal section of the GMAT evaluates critical reasoning through a series of questions that feature argument construction, argument evaluation and the ability to evaluate and formulate a plan of action (GMAC, 2010). The test questions ask students to recognize assumptions, conclusions and similar arguments to recognize factors that strengthen or weaken arguments, and to evaluate the effectiveness or efficacy of plans of action. The critical reasoning questions on the verbal section of the GMAT, then, are consistent in nature with the critical thinking subscale of the MSLQ. Despite the similarities between the two, analysis revealed no

significant relationships between GMAT verbal score and the critical thinking subscale of the MSLQ.

While a detailed discussion of the participant's responses to the critical thinking subscale are included in the response to Research Question 5, the failure to find significant relationships may provide further evidence that students are using self-regulatory strategies adaptively. In the case of this course, response trends have indicated that students may be struggling with the relevance of the course material. Boekaerts and Cascallar (2006) note that adaptive self-regulatory strategies vary and their use depends on a student's perception of how the course relates to him or her personally. Another explanation related to the issue of relevance may be the potential gap between the managerial mindset and the academic mindset of the students, which has been previously discussed.

As working managers from a diverse array of business, students may simply be seeing the course material as the presentation of accepted or established theoretical frameworks. Organization Theory and Behavior is a course that introduces students to existing theories of organizational behavior and students may view the material as foundational and not subject to analysis or critical thought. These findings appear to be consistent with the significant relationships discovered in Research Question 1 indicating that students are more

interested in the acquisition of the concepts then they are in the processes related to learning.

Limitations

This was a correlation study and as such, drawing causal conclusions is not possible. The findings suggest that the MBA admissions criteria of GMAT total score, GMAT verbal score and years of work experience are not predictive of the use of motivational and self-regulatory strategies. Despite these findings, it is clear that students are using self-regulatory strategies at a variety of levels. The varying degree to which each of the strategies is being used presents another limitation of the study, which also exposes a limitation of research in the field of online learning. In his conceptual model, Artino (2008a) argues that, “instructional contexts are perceived and evaluated by students”, and in the case of this study, a part of the instructional context for the student is how the course fits into the MBA program as a whole.

One of the significant limitations in the area of self-regulation research and online learning in general has been the focus on the way students perform in individual courses. A more holistic view of how students modify and adapt their motivational beliefs and self-regulatory strategies to fit within the broader context of an online program has received little attention. This is particularly problematic

because successful programs can potentially modify the student's perceptions based on the level of services and support that comprises the administrative framework of the program. This proactive level of service and support modifies students perceptions and hence the way in which they manage their self-regulatory behaviors.

Implications

This study investigated if the admissions criteria of GMAT total score, GMAT verbal score and years of work experience were predictive of motivational and self-regulation strategies. Findings indicate that while students are leveraging motivational and self-regulatory strategies, the admissions criteria examined in this study are not reliable predictors of their use. While four out of eight survey items on the self-efficacy for learning and performance subscale demonstrated a positive relationship, the majority of survey items studied showed weak or negative relationships. Although admissions criteria had no predictive ability, analysis revealed that students are leveraging motivational and self-regulatory behaviors. These findings hold potential significance for those developing, managing and administering online programs.

The findings of this study indicate that while students are functioning with Artino's conceptual model of self-regulation online (2008a), they may also be functioning beyond the model. As noted, one

of the limitations of research into both self-regulated learning and online learning is the focus on the individual course. Students however, may be viewing what happens in an individual class as an incremental success in the whole of the online program. If this is the case, then program developers and administrators may be able to encourage the use of self-regulatory strategies by modifying the program in ways that might encourage the development of positive achievement emotions.

At the course level, Artino recommends surveying students and providing individualized feedback regarding their strengths and weaknesses (Artino, 2008d). While these steps may work in an individual course, other steps may be required to provide continuity across the duration of the program. As an example, program coordinators assigned to each student could provide those students with a sense of continuity as faculty change from course to course. Another possible implication may require that online programs reevaluate the way in which course materials are distributed to the students and how those materials are related to the contextual environment. Courses might be arranged in a weekly format, for example with specific materials bound to a specific week. Placing some materials in week one, for example, would frame that material as important to that part of the course.

Finally, given the continued growth of online programs, an assessment that discerns the student's capability to self-regulate should be included as a part of the admission process. Assessing the student's capacity to self-regulate prior to admission would give program administrators, coordinators and faculty the information they need to provide proactive support to students. Providing proactive support and assistance has the potential to increase achievement emotions and self-efficacy, and create better personal perceptions about the course and the program.

Recommendations for Future Research

Online learning research continues to suffer from a consistent and systematic problem in that the emphasis of the research is framed, as "this is what I did in my class". Research continues to focus on individual courses that may or may not serve as part of an online program. To date, there is a significant gap in the literature which discusses online programs and how students set goals and self-regulate over the duration of the entire program. While the conclusions in this study were not causal, the results can provide some guidance for program architects, administrators and policy makers.

Institutions should reevaluate the strategic importance of how students are setting performance and mastery goals. Mastery goals which are thought of as the desire to "progress and improve ones

ability”, and performance goals which are contextualized as “the desire to outperform others” (Darnon, Dompnier, Gillieron, & Butera, 2010) have traditionally conceived of as oppositional. More recent evidence, however, indicates that many students pursue them simultaneously, revealing new patterns of adaptive behavior (Darnon, Muller, Schragger, Pannuzzo, & Butera, 2006). These types of adaptive behaviors, coupled with the findings of this study that imply students view the program as an exercise in career progression rather than an academic exercise, raises the question of strategic goal setting. In view of this, it seems reasonable to conclude that students, particularly MBA students set strategic goals for themselves that span the program, and that they may be willing to make sacrifices in individual courses to achieve those long term goals.

Task value beliefs should be more aggressively fostered and promoted (Artino, 2008c; Eccles & Wigfield, 2002). Faculty and instructional designers should reconsider the way in which the goals and objectives of courses are presented and offer them in a way that encourages task value beliefs. The MBA curriculum offers authentic learning experiences by providing real-world examples, case studies, problem-based learning and simulations. While these learning experiences provide valuable learning opportunities for online

students, more work is needed so that students understand how these activities are of value to them.

Finally, because of the diffuse and asynchronous nature of the learning environment itself, research should continue, to discover how to promote the use of self-efficacy beliefs. In the program under study, good progress has been made toward this goal with program coordinators providing positive feedback and assistance. This program also features weekly assessments which provide students with periodic checks of learning efficacy (Crippen & Earl, 2007). Research should also examine better communication between instructor and student, the use of synchronous communication tools such as Skype for example can impact motivational beliefs and self-regulation. While seemingly unrelated to self-efficacy beliefs, synchronous communication may increase instructor presence and provide students a more appropriate feedback mechanism for some (Kim et al., 2004).

Conclusion

This study provides some insight into the way students enrolled in an online MBA program are utilizing and adapting self-regulatory behavior to achieve academic success. Despite that fact that the admissions criteria of GMAT total score, GMAT verbal score and years of work experience were not predictive of student's self-regulatory behaviors, those behaviors are in fact being used and are consistent

with the same types of behaviors in more traditional contexts as well as other online contexts (Whipp & Chiarelli, 2004). The findings offer additional insight in that they suggest that self-regulatory processes play a robust and significant role in the online environment, that students are adapting and modifying their self-regulatory behaviors based on the online environment, and that some students may be thinking about self-regulatory behaviors using a more strategic and holistic way.

Research has indicated that setting goals is a significant component not only of self-regulation but also of achievement and performance (Dweck, 1986). More recently, Darnon, Dompnier, Gillieron and Butera (2010) have suggested, “multiple goal endorsement can in many cases be the most adaptive motivation pattern”. If this is the case, if online learning programs wish to build robust and effective online programs, then the clear path forward is to consider self-regulatory behaviors across the broader context of the online program itself and not limit research to performance within individual courses.

Pursuing a more holistic view of academic self-regulation, a view that encompasses the strategic goal of program completion instead of the tactical goal of success in individual courses has the potential to create new knowledge. Moving forward, it is clear that more colleges,

universities and other educational institutions will continue to adopt online teaching and learning programs. These initiatives will be undertaken to provide competitive advantages, mitigate the limitations of geographical boundaries, defer cost pressures, and meet demands from stakeholders. If the practice of online learning is to make the final transition to the context of “traditional” learning colleges and universities must transcend discussion of it as an episodic learning experience and provide a path forward. Online MBA programs, and the online learning community as a whole must begin to develop more thoughtfully engineered programs that allow students to effectively manage their motivation beliefs and self-regulatory strategies.

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APPENDIX

To: Gary Bitter
EDB 121B

From: Albert Kagan, Chair
Institutional Review Board

Date: 03/29/2006

Committee Action: **Exemption Granted**

IRB Action Date: 03/29/2006

IRB Protocol #: 0602000649

Study Title: A Comprehensive Analysis of Motivational and Self-Regulatory Learning Programs in Corporate

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(2) .

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

You should retain a copy of this letter for your records.

Motivated Strategies for Learning Questionnaire

Part A. Motivation

The following questions ask you about your motivation for and attitudes about this class. Remember there are no right or wrong answers, just answer as accurately as possible. Use the scale below to answer the questions. If you think the statement is very true of you circle 7; if a statement is not at all true of you, circle 1. If the statement is more or less true of you, find the number between 1 and 7 that best describes you.

	1	2	3	4	5	6	7				
	not at all true of me						very true of me				
1. In a class like this, I prefer course material that really challenges me so I can learn new things					1	2	3	4	5	6	7
2. If I study in appropriate ways, then I will be able to learn the material in this course.					1	2	3	4	5	6	7
3. When I take a test I think about how poorly I am doing compared with other students.					1	2	3	4	5	6	7
4. I think I will be able to use what I learn in this course in other courses.					1	2	3	4	5	6	7
5. I believe I will receive an excellent grade in this class.					1	2	3	4	5	6	7
6. I'm certain I can understand the most difficult material presented in the readings for this course.					1	2	3	4	5	6	7
7. Getting a good grade in this class is the most satisfying thing for me right now.					1	2	3	4	5	6	7

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|-----|--|---|---|---|---|---|---|---|
| 8. | When I take a test I think about items on other parts of the test I can't answer. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. | It is my own fault if I don't learn the material in this course. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. | It is important for me to learn the course material in this class. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. | The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. | I'm confident I can learn the basic concepts taught in this course. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. | If I can, I want to get better grades in this class than most of the other students. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. | When I take tests I think of the consequences of failing. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. | I'm confident I can understand the most complex material presented by the instructor in this course. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16. | In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17. | I am very interested in the content area of this course. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. | If I try hard enough, then I will understand the course material. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. | I have an uneasy, upset feeling when I take an exam. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. | I am confident I can do an excellent job on the assignment and tests in this class. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

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|-----|---|---|---|---|---|---|---|---|
| 21. | I expect to do well in this class. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. | The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23. | I think the course material in this class is useful for me to learn. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24. | When I have the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 25. | If I don't understand the course material, it is because I didn't try hard enough. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 26. | I like the subject matter of this class. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 27. | Understanding the subject matter of this course is very important to me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 28. | I feel my heart beating faster when I take an exam. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 29. | I'm certain I can master the skills being taught in this class. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 30. | I want to do well in this class because it is important to show my ability to my family, friends, employer or others. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 31. | Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Part B. Learning Strategies

The following questions ask about your learning strategies and study skills for this class. Again, there are no right or wrong answers. Answer the questions about how you study in this class as accurately as possible. Use the same scale to answer the remaining questions. If you think the statement is very true of you circle 7; if a statement is not at all true of you, circle 1. If the statement is more or less true of you, find the number between 1 and 7 that best describes you.

- | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|-----------------------------|---|---|---|---|---|--------------------|
| | not at all
true of
me | | | | | | very true
of me |
| 32. When I study the readings for this course. I outline the material to help me organize my thoughts. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 33. During class time I often miss important points because I'm thinking of other things. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 34. When studying for this course, I often try to explain the material to a classmate or friend. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 35. I usually study in a place where I can concentrate on my course work. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 36. When reading for this course, I make up questions to help focus my reading. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 37. I often feel lazy or bored when I study for this class that I quit before I finish what I planned to do. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 38. I often find myself questioning things I hear or read in this course to decide if I find them convincing. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

39. When I study for this class, I practice saying the material to myself over and over. 1 2 3 4 5 6 7
40. Even if I have trouble learning the material in this class, I try to do the work on my own, without help from anyone. 1 2 3 4 5 6 7
41. When I become confused about something I'm reading for this class. I go back and try to figure it out. 1 2 3 4 5 6 7
42. When I for this course, I go through the readings and my class notes and try to find the most important ideas. 1 2 3 4 5 6 7
43. I make good use of my study time for this course. 1 2 3 4 5 6 7
44. If course readings are difficult to understand, I change the way I read the material. 1 2 3 4 5 6 7
45. I try to work with other students form this class to complete the course assignments. 1 2 3 4 5 6 7
46. When studying for this course, I read my class notes and the course readings over and over again. 1 2 3 4 5 6 7
47. When a theory, interpretation, or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence. 1 2 3 4 5 6 7
48. I work ard to do well in this class even if I don't like what we're doing. 1 2 3 4 5 6 7
49. I make simple charts, diagrams, or tables to help me organize course material. 1 2 3 4 5 6 7

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|-----|--|---|---|---|---|---|---|---|
| 50. | When studying for this course, I often set aside time to discuss course material with a group of students from the class. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 51. | I treat the course material as a starting point and try to develop my own ideas around it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 52. | I find it hard to stick to a study schedule. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 53. | When I study for this class, I pull together information from different sources, such as lectures, readings and discussions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 54. | Before I study new course material thoroughly, I often skim it to see how it is organized. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 55. | I ask myself questions to make sure I understand the material I have been studying in this class. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 56. | I try to change the way I study in order to fit the course requirements and the instructors teaching style. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 57. | I often find that I have been reading for this class but I don't know what it was all about. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 58. | I ask the instructor to clarify concepts I don't understand well. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 59. | I memorize key words to remind me of important concepts in this class. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 60. | When the course work is difficult, I either give up or only study the easy parts. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

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| 61. | I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying for this course. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 62. | I try to relate ideas in this subject to those in other courses whenever possible. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 63. | When I study for this course, I go over my class notes and make an outline of important concepts. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 64. | When reading for this class, I try to relate the material to what I already know. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 65. | I have a regular place set aside for studying. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 66. | I try to play around with ideas of my own related to what I am learning for this course. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 67. | When I study for this course, I write brief summaries of the main ideas from the readings and my class notes. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 68. | When I can't understand the material in this course. I ask another student in this class for help. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 69. | I try to understand the material in this class by making connections between the readings and the concepts from the lectures. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 70. | I make sure that I keep up with the weekly readings and assignments for this course. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

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| 71. | Whenever I read or hear an assertion or conclusion in this class, I think about possible alternatives. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 72. | I make lists of important items for this course and memorize the lists. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 73. | I attend this class regularly. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 74. | Even when the course materials are dull and uninteresting, I manage to keep working until I finish. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 75. | I try to identify students in this class whom I can ask for help if necessary. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 76. | When studying for this course I try to determine which concepts I don't understand well. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 77. | I often find that I don't spend very much time on this course because of other activities. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 78. | When I study for this class, I set goals for myself in order to direct my activities in each study period. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 79. | If I get confused taking notes in the class, I make sure I sort it out afterwards. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 80. | I rarely find time to review my notes or readings before an exam. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 81. | I try to apply ideas from course readings in other class activities such as lectures and discussion. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |