IACBE

International Accreditation Council for Business Education

JOURNAL FOR ADVANCING BUSINESS EDUCATION

VOLUME 2, ISSUE 1

This Journal is Published by the IACBE

More Information is Available on the IACBE Web Page:https://iacbe.org/news/journal-for-advancing-business-education/

ISSN 2638-8065

International Accreditation Council for Business Education (IACBE)
11374 Strang Line Road, Lenexa, Kansas 66215 USA
Journal for Advancing
Business Education

Volume 2 / Issue 1 June 2020

TABLE OF CONTENTS

ABOUT:

The Journal for Advancing Business Education is a practitioner and scholarly journal that publishes the best work in the field of business education to enhance teaching, achieve student learning outcomes, and meet program goals. The Journal follows the general IACBE theme of "Moving. Forward. Together." All submissions are subject to a double-blind peer review process. The Journal is an online journal and accessible on the IACBE Web page. The Journal for Advancing Business Education is a biannual publication.

MISSION:

The mission of the Journal for Advancing Business Education is to publish best practices and scholarship in business and business-related fields to improve business education and society.

DISCLAIMER:

Facts and opinions in articles published in the Journal for Advancing Business Education (JABE) are solely the personal statements of respective authors and do not necessarily reflect the views of the Journal, the editors, the editorial board or the International Accreditation Council for Business Education (IACBE). Authors are responsible for all contents in their article(s) including accuracy of the facts and statements, citation of resources, etc. JABE and its editors disclaim any liability for violations of other parties' rights, or any damage incurred as a consequence from use or application of any of the contents of JABE. The editors consider in good faith that authors have full permission to publish every part of the submitted material(s) including illustrations.

Sample Recommended Citation for Articles Featured in JABE:
APA Style
Fedor, J.A. (2019). Learning in a cohort: Adapting content to women's learning styles. *Journal for Advancing Business Education*, *1*(1), 16-36.
JABE is Accessible on the Scholastica Journal Web Page: https://jabe.scholasticahq.com/
Journal for Advancing Business Education

FROM THE EDITOR

Dear Reader,

We are delighted to present the second volume issue one of the Journal for Advancing Business Education. In this editorial I want to reflect a little bit on the future of business education and its tenets. In think that this future does already and will more heavily influence the contributions to the Journal for Advancing Business Education. I believe the future of business education will fall, more or less, into three broad categories, which I take to be the ABCs of business education. Namely, the *accessibility* of business education; the *building-blocks* of commercial education that define the content of this education; and *computers* that are an indication that more and more technology will be used in business education.

- **ACCESSIBILITY:** Recently, the traditional business school model was disrupted, which injected more flexibility into the business curriculum. Using different delivery modes for the educational content allow schools to reach a larger audience and make it easier for the institutions to cater to, for instance, working professionals and students around the globe. More flexibility is also present through shorter, more specialized and customizable degrees. In addition, this accessibility is increased by decreasing the cost of degrees, examples of which are The University of Illinois' $22,000 iMBA or Boston University's $24,000 online MBA.

- **BUILDING-BLOCKS (CONTENT):** The building-blocks of the business curriculum have shifted over time. What was once the core of business education, such as accounting, operations, and marketing, is, now more interdisciplinary and science-, technology-, engineering-, and math-oriented (STEM). Also, business programs now concentrate more on practice (learning-by-doing) rather than theory. Many business schools enhance their programs through more student diversity and unique curricular approaches. The business programs work to reenergize their curriculum content by emphasizing social responsibility and sustainability.

- **COMPUTERS (TECHNOLOGY):** Technology has (somewhat) disrupted the traditional business education landscape by instantaneous fulfillment of educational needs through curriculum customization and online delivery (more online degrees). The number of students in online degree programs increases while the number of students in residential programs declines. This is enabled by artificial intelligence, robots, and variety of technological devices. In addition, the technology supports algorithms which are used to analyze big data.

These are some futures of business education and how they will, in no small part, inform and shape the content of and contributions to the Journal for Advancing Business Education.

Thank you!

Christian Gilde
Managing Editor

Journal for Advancing Business Education

VOLUME 2, ISSUE 1

REBALANCING THE MBA CURRICULUM: CRITICISMS, DESIGN RESPONSES, AND OUTCOMES ASSESSMENT

Alan T. Belasen, Ph.D.
Professor
MBA Program
SUNY Empire State College
113 West Avenue
Saratoga Springs, NY 12866
abelasen@esc.edu

ABSTRACT

This paper focuses on curriculum innovation using the Competing Values Framework with the dual benefits of mitigating the main thrust of criticisms in recent business and management education literature and capturing the upside of responsible leadership in management education. The results of outcomes assessment over a two-year period offer a glimpse into the appropriateness and significance of the curriculum change. Faculty buy-in strategies and common challenges associated with the need to adopt new pedagogical models are discussed along with directions for future research.

INTRODUCTION

Scholars have argued that management education lacks practical relevancy and that MBA curriculum is largely theoretical and unsuitable to prepare graduates to handle complex business decisions (Bennis & O'Toole, 2005; Ghoshal, 2005; Laud, Arevalo, & Johnson, 2016; Pfeffer & Fong, 2002). For the most part, MBA programs have continued to graduate students with respectable cognitive skills in the content areas but insufficient skills to excel in responding to ethical, complex, interdependent organizational issues (Mintzberg, 2013). Traditionally, MBA programs offered specialized education in the disciplines of business, not in the practice of management, and produced graduates with a strong preference towards a single functional orientation (Navarro, 2008). This orientation stood in stark contrast to the need to develop organizational, relational and sensitivity skills so essential for dealing with complex global issues or for responding to cross-cultural management challenges (Kedia & Harveston, 1998; Richards-Wilson, 2002; Shimoni & Bergmann, 2006).

Are business schools willing to change their curriculum to reflect the variation in culture, decision-making and leadership styles? Are they prepared to rebalance their curriculum to reflect the rapid changes in the global business environment and shift their focus towards evidence-based (Charlier, Brown, & Rynes, 2011), responsible leadership (Hibbert & Cunliffe, 2015; Pless, Maak, & Stahl, 2011), and triple bottom line (TBL) management education? While such change in management education mirrors changes in the environment of business, much of it has been localized through topical areas or added courses, usually electives. When it comes to ethics, for example, about 75% of all courses have been electives (Rasche, Gilbert, & Schedel, 2013).

The call for greater relevance and accountability in management education has spanned over 30 years with criticisms evolving in three clusters with common themes and propositions: Misaligned pedagogy (1985-1995); incongruent expectations (1995-2005); and, perceptual gaps (2005-2015). These time frames and clusters emerged in the literature as a result of the mounting pressures over the suitability of MBA curriculum for business students and practicing managers and the calls to enhance responsible management education (Hibbert & Cunliffe, 2015; Rubin & Dierdorff, 2009).

We discuss these criticisms briefly and then describe the architecture of an MBA program, built from the ground up, with the intent to make its curriculum more relevant and practical. The curriculum design was approached holistically using the Competing Values Framework (CVF), which is known for its theoretical and practical robustness (Quinn, Bright, Faerman, Thompson, & McGrath, 2014). The results of outcome assessment over a two-year period provide a glimpse into the appropriateness and relevance of the curriculum. An examination of institutional and programmatic issues are shared in the hope to guide curriculum improvements in other programs.

MISALIGNED PEDAGOGY: 1985-1995

Critiques launched during the mid-1980s and the first half of the 1990s challenged schools of business to become more adaptive and in tune with changes in the business environment (Boyatzis, Cowen, & Kolb, 1995; Keys & Wolfe, 1988; McEvoy & Cragun, 1987; Osbaldeston & Barnham, 1989; Porter & McKibbin, 1988). It was argued that the split between theory and practice is not well aligned with the rapid changes in the business environment despite the comfort it

provides to faculty trained in the disciplines. Further, it was noted that business schools encourage a preference for analytical detachment (Muller, Porter, & Rehder, 1991), with an excessive focus on broad, abstract, impractical, and classroom-specific teaching formats.

The common thrust of these criticisms urged management education programs to shift their pedagogical emphasis from knowledge acquisition to skill development and from understanding by listening to learning by doing. Curricular design efforts, it has been argued, tended to place too much emphasis on theories and cognitive skills (i.e., how we acquire knowledge and gather information) and less on practical relevancy (Whetten & Clark, 1996). Most of these critiques suggested that teaching should be more issue-based and learner-centered.

Without adequate institutional or programmatic responses, the rise of alternative credentials for professional development including boot camps, trade schools and non-degree programs (Belasen, 2000), signaled the erosion of value and influence of MBA qualifications (Peterson, 2006).

INCONGRUENT EXPECTATIONS: 1995-2005

The second wave of criticisms questioned the practical relevancy of the business curriculum as well as the preparedness of faculty for embedding global issues in management education (Sharma & Ann Roy, 1996). The emerging theme was that schools of business and MBA programs management programs leave students with fewer opportunities to practice and become competent in the action and intercultural communication skills necessary for effective management (McEvoy, 1998). Non-academicians joined in the protest too, pointing out that the conditions for success are changing so rapidly that the ability to learn fast and effectively (and from a variety of sources) is just as important as the facts and theories that can be learned in business schools.

As globalization has transformed business around the world, companies have been searching for talents with a diverse mix of skills and appropriate experiences. MBA graduates, on the other hand, were ill prepared to deal with complex, multi-layered issues faced by managers in global markets (Bennis & O'Toole, 2005; Ghoshal, 2005; Pfeffer & Fong, 2002). In a retrospective analysis, the *Association to Advance Collegiate Schools of Business*, also known as AACSB International (2011) called for business schools to make more significant and sustained efforts across the curriculum to help students understand the challenges of conducting business in different cultures and countries and enhance cross-cultural appreciation.

PERCEPTUAL GAPS: 2005-2015

The third cycle of criticisms (2005-2015) denoted the transformational dimensions of business education with scholars pointing out the ongoing perceptual gaps between individual and organizational perspectives (Blackman, Kennedy, & Quazi, 2013), as well as the disconnect between what is a culturally acceptable and morally improper judgment or behavior (Gunia, Wang, Huang, Wang, & Murnighan, 2012). It was claimed that learning in business schools has reached a 'tipping point' (Thomas & Cornuel, 2012) in which greater emphasis on ethical and social responsibility, employee engagement, corporate citizenship, inclusiveness, and accountability are needed to deal more effectively with the post-2008 financial crisis as well as confront corruption in business (Podolny, 2009). The emerging concern was that theories and case studies are

insufficient in replicating the complex interactions in a global context and that greater focus should be placed on responsible business ethics, actual engagement and reflexive examination (Hibbert & Cunliffe, 2015).

Lack of responsibility is often manifested in egocentric leaders who substitute self-awareness with self-centeredness and involves decisions and actions that ignore the rights and interests of stakeholders (Belasen & Toma, 2016). The United Nation's Principles for Responsible Management Education (PRME) launched in 2007 highlighted the importance of orienting business education curricula and teaching practice to the international values of human rights, environmental responsibility, labor rights and transparency. Yet PRME was not fully operationalized given the magnitude of corruption in business (Belasen & Toma, 2016) leaving the theory-practice gap largely unchallenged (Alcaraz & Thiruvattal, 2010; Osland, Bird, Mendenhall, & Osland, 2006) and the question of how managers most effectively develop responsible practices unfulfilled. Pless, Maak and Stahl (2011) found that while 95% of the respondents in their sample increased their knowledge of responsibility issues and 91% were able to reflect on this, only 35% felt the need to act on that knowledge. Others argued that the downside of a traditional MBA curriculum outweighs its upside and claimed that business schools are in a state of acknowledged crisis (Golden, Hsieh, Ingene, & Phillips, 2016). The three cycles of criticisms are categorized in Table 1.

Table 1. Evolution of Management Education

Criticisms	What Is Taught	How It Is Taught	Who Is Taught	Why It Is Taught	Where It Is Taught
1985-1995	Functional and quantitative skills	Understanding by listening; emphasis on theory and cognitive skills	Students for degree	Knowledge acquisition	Discipline bound departments, traditional classrooms
1995-2005	Outside-in perspectives on management	Knowledge transfer, best practices	Practicing managers, professionals	Increased complexity and diversity	On-line, evening, flipped-classrooms
2005-2015	Globally-related, moral judgment, TBL	Reflexive examination, hybrid learning	Diverse, international students	Transforming organizations, responsible leadership	Virtual classrooms, interactive platforms

DESIGN RESPONSES

One response by a small public liberal arts college located in the Northeast for meeting the overall challenge of updating the way management is taught, how it is taught, who is taught, and where it is taught, is described below. The 36-credit MBA (see Table 2) with its emphasis on high-performance leadership has attracted mid-career managers and professionals with expertise in one or more of the functional areas of business (i.e., marketing, finance, IT, accounting) who wish to expand their business management knowledge as well as root such knowledge in a competency

framework. With a focus on how to manage, rather than learning about management, this MBA offers students opportunities to practice and become proficient in applying technical and social skills for effective business management.

Unlike the previous MBA curriculum, which was too lengthy (48 credits), somewhat redundant, and followed a traditional path of aspiring managers and professionals needing functional knowledge and managerial skills to grow and pursue upward mobility in their settings, the 36-credit MBA offered an accelerated, cost-effective degree. Moreover, infusing the curriculum with values and contents associated with inclusive leadership, ethical reasoning, and global awareness – the pillars of responsible management education – made the MBA relevant for learners pursuing positions in multinational organizations.

Of course, the great challenge associated with modifying the curriculum to enhance the program's attractiveness to prospective students – especially since the proposal involves a reduction in credit requirements – is the need to maintain the integrity and quality of the program and ensure that the learning experience will be meaningful and relevant for students. In this regard, the faculty organized a framework for evaluating the learner's acquisition of knowledge and skills through the development of learning goals as part of the *International Accreditation Council for Business Education* (IACBE) accreditation process. These goals, when taken together, constitute a comprehensive foundation for the MBA curriculum. The learning goals and outcome assessments are discussed later in this paper.

An important goal for the newly designed MBA was to provide the widest possible access to professionals with diverse backgrounds and range of experiences, seeking their MBA through the flexibility of time and place and a platform for sharing best practices. The development of the asynchronous virtual classrooms with intensive discussion forums aligned well with these expectations. The online format has been particularly alluring to women professionals trying to balance both career and personal obligations, as evident in the high percentage of women enrolled in this program (58%).

Table 2. Curriculum Change

MBA Courses (48 Credits) OLD	MBA Courses (36 Credits) NEW	Notes
Executive Assessment & Development	Organizational Behavior & Leadership	The new course integrates contents from the three courses and focuses on alignment of leadership skills and roles with organizational goals and strategies. Topics include organizational paradoxes, rationalistic and humanistic structures, gender diversity in corporate leadership, cultural change, communication, personality, engagement, power and influence, conflict management, and ethics.
Human Systems & Behavior		
Managerial Reasoning		
Scanning the Business Environment	Strategic Perspectives of Global Management	The new course shifts the analysis to constraints, opportunities, and ethical choices in global environments. The goal is to enhance appreciation of the richness of the multinational environments in which many businesses operate. While global environments offer additional dimensions along which executives can add value, it also imposes additional constraints. Further, executives often find that they must make potentially costly ethical decisions involving international assignments. Thus, global management often requires an additional layer of ethical reasoning that goes beyond domestic executive decision-making.
High Performance Management	High Performance Management	The new course includes updated content on system integration, quality management, reliability, planning and analytics.
Management Information Systems	Management Information Systems	The new course is updated with topics such as analytics and informatics. It covers business cases and information system analysis and design through the system development life cycle, database technology, design of web-based business presence, integrating information systems into a business process, and applications of information systems.
Accounting & Finance	Financial Management	In addition to capital structure formation, risk assessment and return, the course addresses the diagnostics of working capital, financial planning and forecasting techniques, as well as the financial management of multinational corporations.
Operations Management	Operations Management	With a focus on supply chain management the course covers quantitative and analytical management tools and techniques in business decision making. Topics include operations strategy, project management, process strategy and analysis, quality and performance management, capacity and constraint management, lean systems, supply chain and inventory management, forecasting, operations planning and scheduling, and resource planning.
Managerial Economics	Managerial Economics	Updated with the main goal to make students aware of economic forces at a national and global levels through a dynamic interplay of firms, consumers, and investors wherein market forces play a central role in the production, valuation, and allocation of scarce resources, including goods, services, and financial capital, that are vital for strategic managerial decision-making.
Marketing Management & Strategies	Strategic Marketing Management	Updated with considerations of ethical and organizational issues that influence the effectiveness of a firm's marketing strategy; the relationship between the marketing strategy and the organization's strategic plan, and global implications of the dimensions of decision-making for marketing managers.
Managerial Decision Making		Course content is incorporated in strategic perspectives of global management, strategic marketing, managerial economics, and operations management.
Strategic Analysis & Executive Choice (Capstone I)	Strategic Business Applications (Capstone)	The two capstone courses are combined into a single course designed to integrate students' competencies in leadership, strategic management, ethical decision-making and managerial communications, and apply the functional and professional skills they have gained throughout the program to formulate and implement successful strategic plans in the competitive global environment.
Strategic Executive Leadership (Capstone II)		
3 electives	3 electives with a specialized certificate option	Students can specialize in areas such as project management, human resource management, healthcare management, financial management and analysis, and others as part of advanced certificates.

METHODS FOR REVISING THE CURRICULUM

The basic program consists of 36 graduate credit hours with 12 courses distributed across foundation (2), core (6), directed electives (3), which are also part of a specialized certificate, (e.g., project management; financial management, HRM, marketing analytics) and a capstone course. Through presentations, real-time discussions of managerial and ethical situations, analysis of actual cases, reflections and sharing of ideas, students come to understand the nature and requirements of complex organizational environments. Armed with this preparation they continue to work on course assignments and engage in intensive and dynamic discussion forums facilitated by expert faculty. Asynchronous discussions are based on multi-media platforms that also include animation and audio or video recording of the instructor as well as lecture notes and PowerPoint slides. Synchronous lectures are also available using Skype and Blackboard Collaborate, with plans to employ Adobe Connect, Zoom, and Echo360 personal capture software.

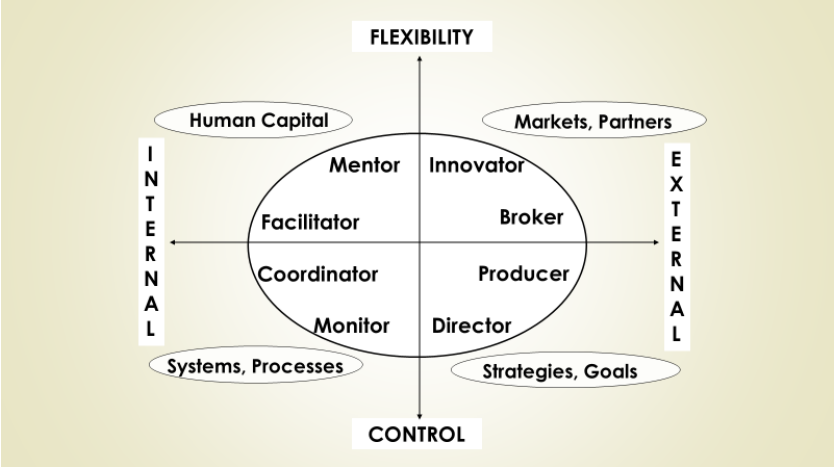
The curriculum mapping for diagraming courses and content areas, identifying and addressing academic gaps and misalignments, and improving the coherence and attractiveness of the MBA, was based on the Competing Values Framework (CVF) described below. In addition to serving as a mapping tool, the CVF has also provided students with a basis to assess the relative strengths of their leadership profile, identify gaps, and develop sound improvement plans similar to Ladyshewsky and Taplin (2014).

The CVF highlights the contradictory nature inherent in organizational environments and the complexity of choices faced by managers when responding to competing tensions (Quinn, 1988). These responses include a variety of managerial roles and their corresponding domains of actions (Figure 1). For example, the innovator and broker roles rely on creativity and communication skills for change management and engaging partners and customers. The monitor and coordinator roles are more relevant for integrating processes and stabilizing the system and require project management and supervision skills. The director and producer roles are geared towards bottom-line goals and crafting strategies for building and sustaining competitive advantage. The facilitator and mentor roles are responsible for promoting and rewarding talent, facilitating lateral communication, engaging and motivating employees. The upper part of the framework in Figure 1 reflects transformational aspects of leadership, while the lower part reflects transactional aspects.

The body of data on the CVF highlights the common theme that effective managers display cognitive complexity to handle the contradictory expectations in their environment and, at the same time, maintain some measure of personal integrity and credibility when they respond to competing commitments (Cameron, Quinn, & DeGraff, 2006). With that in mind, we used the CVF to map out the curricular needs of the MBA (see below) in addition to embedding it as a competency assessment tool in the MBA opening course, Leadership & Organizational Behavior (LOB); and, as an analytical tool in the culminating course, Strategic Business Applications.

In LOB students are encouraged to reflect on their experiences to check the behavioral skills against the expectations of others or changes in the environment. This process provides students with meaningful feedback to validate their learning and for reassessing their strengths. Self-directed learning becomes a powerful medium for improvement when learners are self-disciplined and when the drive to learn is generated from within (Boyatzis et al., 1995).

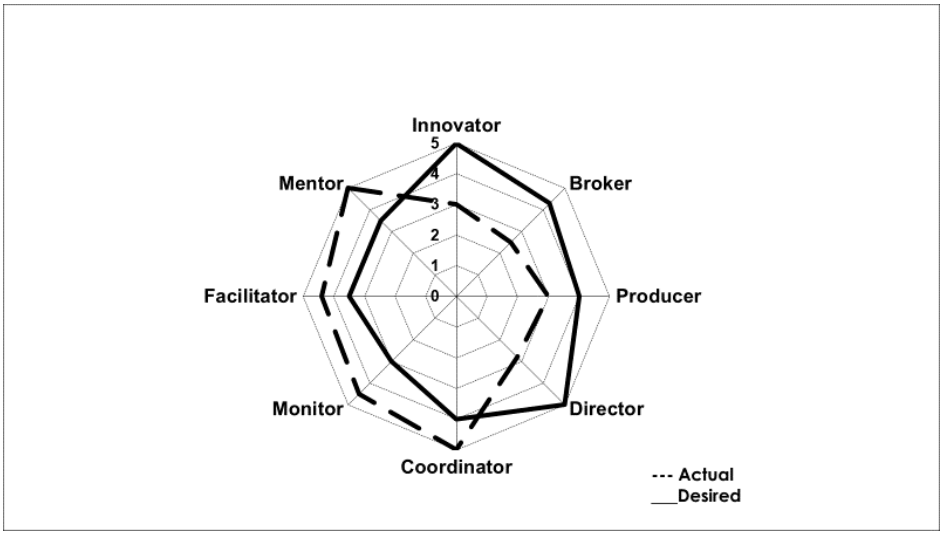
Figure 1. Competing Values Framework



Adapted from: Quinn, R. E. (1988). *Beyond rational management*. San Francisco: Jossey-Bass.

Enrolled students assess their strengths and weaknesses using CVF methodologies at the start of their program and at graduation and are encouraged to check their progress by the end of each term. The purpose of the assessment is to teach students to use diagnostic methods to identify their own strengths and weaknesses, evaluate current or future skills, and formulate plans for skill development under the guidance of expert faculty. One illustration appears in Figure 2. The distance between the two profiles (actual vs. preferred) reflects new needs, interests and goals, the starting point for self-improvement and skill development.

Figure 2. CVF Assessment

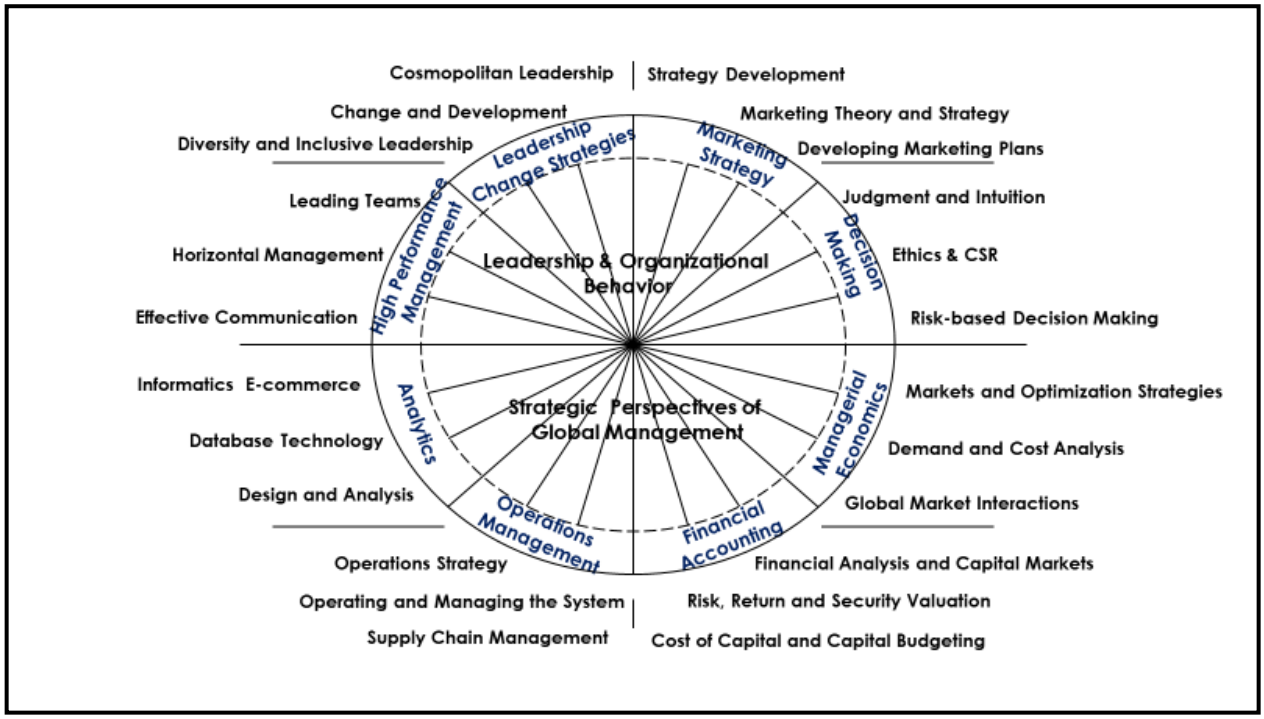


CURRICULUM MAPPING

The development of skills and abilities to deal with the growing complexity of managerial responsibilities requires pedagogical strategies compatible with competency-based education (Chyung, Stepich, & Cox, 2006). A competency-based program, especially one grounded in the CVF, obviates the concern over the balance of "soft" versus "hard" skills. Soft skills such as flexibility, collaboration, teamwork, interpersonal communication, listening, and empathy, typically fit the upper left quadrant of the CVF, while hard skills such as analytics, computer technology, informatics, networking communication, and project management fall under the lower left. Parlamis and Monnot (2018) argued that CORE is a more fitting acronym that stands for Competence in Organizational and Relational Effectiveness. Relational skills include attitude, trustworthiness, communication, leadership ability, cooperativeness, responsibility, initiative, managing emotions, and demonstrating self-awareness. Organizational skills encompass the ability to influence others, manage conflict, negotiate, coach and mentor, understand organizational contexts, and develop meaningful networks.

A similar distribution of skills occurs on the right side of the CVF with the upper quadrant including critical thinking and ethical decision-making skills and the lower right quadrant reflecting managerial economics and financial skills. An appropriate balance between CORE or soft and hard skills is achieved because the CVF affirms that both sets of skills are essential for leadership effectiveness (Figure 3). The overarching themes that infuse the curriculum are leadership effectiveness, global understanding, ethics and social responsibility. We feel that these three themes respond well to the three cycles of criticism described earlier.

Figure 3. Mapping the MBA Curriculum*



*In 2016, the implementation of the new curriculum embedded Leadership Change Strategies and Decision Making in the foundation courses (LOB and SPGM) thus creating more room for electives and for the development of additional certificates in important specialized areas e.g., marketing analytics and brand management.

OUTCOME ASSESSMENT: 2016-2017

Evaluation of the program's impact and effectiveness is necessary so that gaps can be identified and analyzed, and content areas updated or improved. In an ideal world, Kirkpatrick's (1994) four-level model of education and assessment would be adopted and students would be assessed. This assessment occurs in terms of *Reactions* (students' satisfaction and relevance of their education), *Learning* (change in student performance on tests and other measures), *Transfer* (students' ability to use their new knowledge in practice), and *Results* (students' ability to make a difference in their work settings). However, it has been nearly impossible for schools to design assessment mechanisms that would shed light on the latter two stages, which occur outside the university setting and are subject to a variety of non-educational variables including lack of opportunity to use one's learning, supervisory constraints, or career shifts (Belasen & Huppertz, 2009; Swanson & Holton, 1999).

Recognizing that level 3, or the extent to which new skills and knowledge have been applied on the job, is impractical in the short term, and level 4 is out of reach, the designers of the 36-credit MBA set out to create learning goals that are evidence-based, developmentally-oriented and that are also in line with Kirkpatrick's first two levels. Thus, the assessment program focused on measuring what our students should learn and ways they should grow.

Direct Measures

Following the IACBE guidelines, at the time of this assessment, two direct measures were used to evaluate student learning: (1) *Capstone Assignment*, an integrative case study, completed during the first half of the capstone project and evaluated by course instructors; and, (2) *Capstone Project*, completed at the end of the capstone and evaluated by faculty and experts not teaching the capstone course.

The scoring rubric was based on four distinct categories developed by the MBA faculty: Novice, Competent, Proficient, and Expert. The data presented in Table 3 indicates that the student learning outcomes have been met for all six learning goals (at least 80% of our students performed at or above a competency level).

Table 3. Outcome Assessment Results for Direct Measure 1: Capstone Assignment

Learning Goals	N = 63	Novice	Competent	Proficient	Expert	At or above Competent
Disciplinary Knowledge		1.6%	14.3%	47.6%	36.5%	98.41%
Critical and Strategic Thinking		3.2%	19.0%	49.2%	28.6%	96.83%
Leadership		3.2%	4.8%	23.8%	68.3%	96.83%
Ethical Decision Making		3.2%	25.4%	61.9%	9.5%	96.83%
Global Understanding		3.2%	36.5%	42.9%	17.5%	96.83%
Managerial Communication		1.6%	36.5%	31.7%	30.2%	98.41%

While the MBA program met the performance targets for the six learning goals, it was noted that the combined score at the proficient and expert levels for managerial communication and global understanding is not as high as they are for the other learning goals. However, these deficiencies were not shown in the second direct measure (Table 4), which provided a chance for students to present their case orally and more convincingly respond to direct questions and prompts by the evaluators.

Table 4. Outcome Assessment Results for Direct Measure 2: Capstone Project

Learning Goals	N = 63	Novice	Competent	Proficient	Expert	At or above Competent
Disciplinary Knowledge		1.5%	8.8%	36.8%	52.9%	98.53%
Critical and Strategic Thinking		1.5%	13.2%	30.9%	54.4%	98.53%
Leadership		1.5%	13.6%	34.8%	50.0%	98.48%

Ethical Decision Making		0.0%	10.4%	40.3%	49.3%	100.00%
Global Understanding		3.9%	9.8%	45.1%	41.2%	96.08%
Managerial Communication		0.0%	10.3%	30.9%	58.8%	100.00%

Indirect Measures

As part of the IACBE accreditation requirements, at the time of this assessment, indirect measures included exit surveys of program graduates. The first survey, conducted upon graduation, required students to rate how well the program has prepared them for their careers, with 1 indicating not prepared at all and 5 completely prepared. The data in Table 5 indicates that all six learning goals have been met (a mean of 4 or greater).

Table 5. Exit Survey

Learning Goal	As a result of taking this MBA, I can…	Mean
Critical and Strategic Thinking	differentiate between strategic and operational goals and plans	4.50
	select and use the appropriate strategic management frameworks	4.36
	assess the effectiveness of performance outcomes	4.50
	analyze and provide rationale for a strategic vision	4.50
	integrate functional knowledge and managerial competencies to maximize organizational performance	4.57
	apply critical thinking and skills to support organizational decision making	4.57
Managerial Communication	communicate effectively orally with diverse stakeholders	4.50
	communicate effectively in writing with diverse stakeholders	4.43
Leadership	assume leadership roles to deal with competing tensions of internal and external environments	4.71
	utilize human capital to support organizational strategies and goals	4.50
Ethical Decision Making	respond to social and environmental needs responsibly and credibly	4.65
	demonstrate command of applicable theory and decision-making tools	4.29
	research, synthesize, and apply relevant information and competencies to inform decisions	4.57
Global Understanding	manage relationships across cultures and handle the dynamics of international business	4.36
	use disciplinary tools to implement business goals and strategies in global environments	4.43
Disciplinary Knowledge	use disciplinary knowledge and managerial competencies to evaluate strategy and allocate resources (financial and human) to support the strategic direction of the organization	4.43
	grasp major concepts related to:	
	management information systems	4.29
	accounting and finance	4.07
	operations management	4.43
	strategic marketing management	4.64
	managerial economics	4.36

The second indirect measure was sent to students 1-3 years after graduation requiring them to rate how well the program prepared them for workplace challenges, with 1 indicating extremely ineffective and 6 indicating extremely effective. The data in Table 6 shows that the six learning goals have been met. While the outcomes of the assessment across the six learning goals aligned well with the expectations of program faculty and administrators, it was noted that the revised curriculum, with its embedded specialized certificates, should continue to improve students' overall learning experience and satisfaction.

Table 6. Alumni Survey

Learning Goal	How effective was your overall experience in the MBA program in developing the ability to ...	Mean
Critical & Strategic Thinking	differentiate between operational goals and plans	5.25
	select and use the appropriate strategic management frameworks	5.21
	assess the effectiveness of performance outcomes	5.25
	analyze and provide rationale for a strategic vision	5.29
Managerial Communication	communicate effectively orally with diverse stakeholders	5.17
	communicate effectively in writing with diverse stakeholders	5.38
Leadership	assume leadership roles to deal with competing tensions of internal environments	5.17
	utilize human capital to support organizational strategies and goals	5.17
Ethical Decision Making	respond to social and environmental needs responsibly and credibly	5.25
	show sensitivity to corporate and sustainability issues	5.21
	demonstrate command of applicable theory and decision-making tools	5.54
	research, synthesize and apply relevant information and competencies to inform decisions	5.75
Global Understanding	manage relationships across cultures and handle the dynamics of international business	4.94
	use disciplinary tools to implement business goals and strategies in global environments	5.54
Disciplinary Knowledge	use disciplinary knowledge and managerial competencies to evaluate strategy and allocate resources (financial and human) to support the strategic direction of the organization	5.29
	apply functional knowledge and skills to help support organizational decision making	5.42
	grasp major concepts related to:	
	management information systems	4.75
	accounting and finance	4.54
	operations management	4.92
	Strategic marketing management	4.84
	managerial economics	4.46

While the response rate of 30% for the exit surveys was relatively low, the survey questions, which were based on the actual learning goals provided useful information to program

faculty to help corroborate the results from the direct measures. The exit surveys were pilot-tested with alumni to get their feedback on item clarity and content. The questions were also validated through an inter-rater reliability procedure in which different faculty reviewed and rated the pilot surveys to address the issue of consistency in the implementation of the rating system. The capstone course also included information about the learning goals, definitions, and expectations and graduating students were notified that they will be assessed to see if the gained competencies have been applied at work.

The data obtained through the direct measures were strengthened by the results of the exit surveys despite the self-selection and social desirability biases associated with self-report data. The indirect measures were important as they added value to faculty expectations about the success of student learning and whether the new knowledge and skills gained throughout the MBA were useful and relevant for supporting the students' professional growth and organizational effectiveness. As discussed above, some aspects of learning, especially at higher levels, are difficult to measure. Larger samples and greater response rates and data triangulation (e.g., by the Office of Institutional Effectiveness) may be used in the future to strengthen the analysis and confirm confidence in the self-report data.

DISCUSSION: MITIGATING FACTORS, BUY-IN STRATEGIES

The revisions to the MBA program described in this paper serve as an important reminder to business and management educators to move beyond the knowing-doing trap to the proactive adoption of curricular design that brings currency and accountability to management education.

It is probably not incautious to suggest that most proponents of competency-based education recognize that the traditional academic disciplines are not entirely adequate as a foundation for their programs. A recommendation to decision makers and curriculum designers is to shift away from the disciplinary bound curriculum to one that adopts cross-disciplinary perspectives and that reflects the dynamics and realities of interdependent complex systems and cross-cultural management.

The high level of interdisciplinary activity and the transformation of the educational process demands strain program developers, seeking to innovate within the traditional models of curriculum design and delivery. The development of a competency-based management program requires a level of innovation beyond the commonly employed incrementalism in the process of curriculum change. Of course, unless there is "a state of acknowledged crisis" (Birnbaum, 1988: 205), exploratory and experimental curriculum development may not be feasible.

Further, even if a state of crisis is acknowledged, it is very important that competency-based management programming only cautiously replaces the disciplinary classifications of knowledge that underlies traditional curricular development with a sound, alternative foundation. Nevertheless, the temptation to develop competencies by casual empiricism or ad hoc theorizing, rather than linking them with learning goals, must be avoided. Learning goals that align with competencies also lead to managerial success (Costigan & Brink, 2015).

The degree of faculty resistance is most commonly attributed to factors such as general pedagogical disagreements (Elizondo-Montemayor, Hernández-Escobar, Ayala-Aguirre, & Aguilar, 2008; Mitchell, Parlamis, & Claiborne, 2015), status quo bias, loss aversion and endowment defenses (Kahneman, Knetsch, & Thaler, 1991; Tagg, 2012). These factors, which drive many faculty in academic settings permeated by traditional silos to resist change, were less

noticeable in our program, with most of our faculty members endorsing the need for rebalancing the curriculum enthusiastically.

What helped create a sense of urgency among faculty members was the perceived threat from competing MBAs which began to transition more aggressively towards shorter, more focused, fast-track degrees using online platforms. Around the same time, the AACSB International (2015) published the key findings from surveys of participants in its series of symposia on redesigning MBA curricula. Seventy-four percent of those surveyed indicated that they had attended the symposium because their schools were considering changes to their curricula. Sixty-four percent of the respondents reported important revisions; 41% disclosed that changes had been made to their program's architecture (which would consist largely of formatting changes, e.g., changing credit hour requirements). Thirty-seven percent indicated changes in pedagogical approach (such as new modes of teaching delivery). In these programs, faculty familiar with online platforms and competency-based management education helped facilitate the common challenges associated with the need to adapt to new learning platforms (Rainwater, 2016).

Mitigating factors in our efforts to rebalance our curriculum were the young age of the MBA, a small group of engaged faculty, and a supportive chair who acted as a change champion. Moreover, the school's openness to programmatic innovation, cultural readiness and a thriving climate of collaboration across all stakeholders created the synergy needed to accomplish the goals of change. With high faculty involvement and sympathetic university leadership, much of the discussion around implementing the curriculum innovation focused on constructive feedback, progress in course revisions or new course development.

Buy-in strategies included shared responsibility for course development, dean/faculty co-sponsorship, and proximity to and recognition by administrative leadership. The tension associated with professional identity due to the shift toward interdisciplinary teaching dissolved rather quickly with the development of specialized graduate certificates with faculty assigned as academic coordinators. Graduate certificates are designed to provide focused study to support a particular career interest. Certificates are based on a core course plus three specialized electives, are offered online and can be completed as an individual credential or incorporated into the MBA as transfer credits. Examples include Human Resource Management, Project Management, Financial Management, and Healthcare Management.

The concern of some faculty that the reduction in instructional credits may result in their inability to meet workload expectations and teaching obligations were diffused with forecasts about higher enrollments and the much-anticipated higher retention rates. The reduced number of credits created a cost-effective, accelerated degree to prospective students, and its focus on competency-education became a selling point to employers offering tuition reimbursement as a benefit.

IMPLICATIONS

The organizing method for rebalancing the MBA curriculum, the Competing Values Framework (CVF), a proven method that forms the basis of integrative leadership effectiveness (Belasen & Frank, 2008), provides a cognitive map from which students can begin to make sense of the variety of behavioral skills they are expected to develop. Further, the CVF provides a language that enhances communications across hierarchical levels (Belasen & Frank, 2010). We believe that redirecting the process of management education through the lens of the CVF can

result in a greater balance between soft and hard business skills. This approach is in line with Wankel's (2006) advocacy for a more holistic approach to embedding innovation within the fabric of the entire business school and management education enterprise.

Pedagogical suggestions and revisions to content areas are discussed at length by Golden et. al. (2016) including de-emphasizing teaching of traditional strategic planning, in favor of strategic alignment and execution of strategies; identifying ethical issues and focusing on practicing moral judgment with the intent to expect more from students beyond technical proficiency and measures of ROI. As argued by Baden and Malcolm (2015), if business is to retain its legitimacy and benefit society, profit should be viewed as a surrogate goal, a means to the end of sustainable business rather than an end in itself. This should also be reflected in the metrics and criteria used to measure success in management education theories and practices.

LIMITATIONS AND FUTURE RESEARCH

The online learning format connects students, instructors, experts, and organizations on a global basis. While we do not expect to develop a new breed of 'global warriors', we certainly hope that we help affect the way the curriculum is designed and taught, how students think and reflect, and how they apply competencies both responsibly and ethically to solving complex social and business issues.

Despite the growing popularity of the CVF as a curriculum map because it allows a visualization of functional knowledge and leadership skills (see for example Belasen, 2012, 2019), the framework is not without its weaknesses. Some of these weaknesses include the appearance of mutually exclusive content areas that possibly limit the applicability of interdisciplinary studies. While the intent of this paper is not to recommend a "one-size-fits-all" approach to curriculum change, other models are equally important. For example, Gosling and Mintzberg's (2004) "experienced reflections" approach focuses on the integration of managerial practice, life experience, thoughtful reflection, interactions, and linkages with organizational development. The best MBA curriculum is when the educational push of the faculty meets the learning pull of the managers.

While the current paper provides evidence about the level of preparedness of graduates to be successful at their companies through self-reports, it would be helpful for future researchers to identify opportunities for correlating the results of the outcome assessments with employers' perceptions of business school graduates' and the level of importance employers place on specific skills gained through the MBA. The GMAC (2019) worldwide survey of more than 1200 employers soliciting employability skills could become an appropriate venue for such extensions. For example, when asked about their level of agreement with the statement "Business school graduates are well prepared to be successful in my company," about 65% of the respondents agreed and 21% strongly agreed. However, 12% disagreed and 2% strongly disagreed. What accounts for these results (especially the 14% gap) and whether management education programs and business schools are mapping these results to their improvement efforts are important research questions that can help validate the value and strength of the curriculum and make management education more relevant and accountable. We certainly hope that rebalancing our MBA curriculum using the CVF as the theoretical foundation will incite others to pursue similar innovation.

REFERENCES

AACSB International (2011). *The globalization of management education: Changing international structures, adaptive strategies, and the impact on institutions*. Report of the AACSB International Globalization of Management Education Task Force. Emerald Group Publishing Limited.

AACSB International (2015). *Re-designing the b-School curriculum.* Retrieved from https://aacsbblogs.typepad.com/dataandresearch/2015/06/redesigning-the-b-school-curriculum.html

Alcaraz, J. M., & Thiruvattal, E. (2010). An interview with Manuel Escudero: The United Nations' Principles for Responsible Management Education: A global call for sustainability. *Academy of Management Learning and Education*, *9(*3), 542-550.

Baden, D., & Higgs, M. (2015). Challenging the perceived wisdom of management theories and practice. *Academy of Management Learning & Education*, *14*(4), 539-555.

Belasen, A. (2019). *Dyad leadership and clinical integration: Driving change, aligning Strategies.* Chicago, IL: Health Administration Press.

Belasen, A. (2000). *Leading the learning organization: Communication and competencies for managing change*. Albany, NY: SUNY Press.

Belasen, A., & Frank, N. M. (2008). Competing values leadership: Quadrant roles and personality traits. *Leadership and Organizational Development Journal*, *29*(2), 127-143.

Belasen, A. T., & Huppertz, J. (2009). Designing and implementing a mission-driven, student-centered assessment program. *The Journal of Health Administration Education*. Winter, 5-26.

Belasen, A., & Frank, N. (2010). A peek through the lens of the competing values framework: What managers communicate & how. *The Atlantic Journal of Communication*, *18*(5), 280-296.

Belasen, A. (2012). *Developing women leaders in corporate America: Balancing competing demand, transcending traditional boundaries*. Santa Barbara, CA: Praeger.

Belasen, A., & Toma, R. (2016). *Confronting corruption in business: Trusted leadership, civic engagement* (Eds.). New York: Routledge.

Bennis, W. G., & O'Toole, J. (2005). How business schools lost their way. *Harvard Business Review*, *83*(5), 98-104.

Birnbaum, R. (1988). *How colleges work: The cybernetics of academic organization and leadership*. San Francisco, CA: Josey-Bass Publishers.

Blackman, D., Kennedy, M., & Quazi, A. (2013). Corporate social responsibility and individual resistance: Learning as the missing link in implementation. *Management Learning*, *44*(3), 237–252.

Boyatzis, R. E., Cowen, S. S., & Kolb, D. A. (1995). *Innovation in professional education*. San Francisco: Jossey-Bass Publishers.

Charlier, S. D., Brown, K. G., & Rynes, S. L. (2011). Teaching evidence-based management in MBA programs: What evidence is there? *Academy of Management Learning & Education*, *10*(2), 222-236.

Cameron, K. S., Quinn, R. E., & DeGraff, J. (2006). *Competing values leadership: Creating value in organizations*. Cheltenham, UK: Edward Elgar.

Chyung, S. Y., Stepich, D., & Cox, D. (2006). Building a competency-based curriculum architecture to educate 21st-Century business practitioners. *Journal of Education for Business*, July/August, 307-314.

Costigan, R. D., & Brink, K. E. (2015). Another perspective on MBA program alignment: An investigation of learning goals. *Academy of Management Learning & Education*, *14*(2), 260-276.

Elizondo-Montemayor, L., Hernández-Escobar, C., Ayala-Aguirre, F., & Aguilar, G. M. (2008). Building a sense of ownership to facilitate change: The new curriculum. *International Journal of Leadership in Education: Theory and Practice*, *11*(1), 83–102.

Ghoshal, S. (2005). Bad management theories are destroying good management practices. *Academy of Learning & Education*, *4*(1), 73-91.

GMAC (2019). *Employability and business school graduates: Corporate recruiters survey.* Retrieved from https://www.gmac.com/-/media/files/gmac/research/employment-outlook/employability-and-business-school-graduates_corporate-recruiters-survey-2019.pdf

Golden, L., Hsieh, J., Ingene, C., & Phillips, F. Y. (2016). Business schools in crisis. *Journal* of *Open Innovation*: *Technology*, *Market*, *and* C*omplexity*, *2*(10), 1-21.

Gosling, G. & Mintzberg, H. (2004). The education of practicing managers. *Sloan Management Review*, *45*(4), 19-22.

Gunia, B., Wang, L., Huang, L., Wang, J., & Murnighan, J. (2012). Contemplation and conversation: Subtle influences on moral decision making. *Academy of Management Journal*, *55*(1), 13-33.

Hibbert, P. & Cunliffe, A. (2015). Responsible management: Engaging moral reflexive

practice through threshold concepts. *Journal of Business Ethics*, *127*(1), 177-188.

Kedia, B.L., & Harveston, P.D. (1998). Transformation of MBA programs: Meeting the challenge of international competition. *Journal of World Business, 33*(2), 203-217.

Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1991). Anomalies: The endowment effect, loss aversion, and status quo bias. *Journal of Economic Perspectives, 5*(1), 193-206.

Keys, B., & Wolfe, J. (1988). Management education and development: Current issues and emerging trends. *Journal of Management*, *14*(2), 205-229.

Kirkpatrick, D. L. (1994). *Evaluating training programs: The four levels*. San Francisco: Berrett-Koehler.

Ladyshewsky, R., & Taplin, R. (2014). Evaluation of curriculum and student learning needs using 360-degree assessment. *Assessment & Evaluation in Higher Education*, *40*(5), 698-711.

Laud, R., Arevalo, J., & Johnson, M. (2016). The changing nature of managerial skills, mindsets and roles: Advancing theory and relevancy for contemporary managers. *Journal of Management & Organization*, *22*(4), 435-456.

McEvoy, G. M. (1998). Answering the challenge: Developing the management action skills of business students. *Journal of Management Education*, *22*(5), 655-670.

McEvoy, G. M., & Cragun, J. R. (1987). Management skill building in an organization behavior course. *Organizational Behavior Teaching Review*, *11*(4), 60-73.

Mintzberg, H. (2013). *Simply managing: What managers can do – and can do better*. San Francisco: Berrett-Koehler Publishers.

Mitchell, L. D., Parlamis, J. D., & Claiborne, S. A. (2015). Overcoming faculty avoidance of online education: From resistance to support to active participation. *Journal of Management Education*, *39*(3), 350–371.

Muller, H., Porter, J., & Rehder, R. (1991). Reinventing the MBA the European way. *Business Horizons*, *34*(3), 83-91.

Navarro, P. (2008). The MBA core curricula of top-ranked U.S. business schools: A study in failure? *Academy of Management Learning & Education*, *7*(1), 108-123.

Osbaldeston, M., & Barnham, K. (1989). Developing managers for the future. *Journal of European Industrial Training*, *13*(4), 5-10.

Osland, J., Bird, A., Mendenhall, M., & Osland, A. (2006). Developing global leadership capabilities and global mindset: A review. In G. K. Stahl and I. Bjorkman (Eds.),

Handbook of research in international human resource management (pp. 197–222). Edward Elgar Publishing.

Parlamis, J., & Monnot, M. J. (2018). Getting to the CORE: Putting an end to the term "Soft Skills". *Journal of Management Inquiry*, *28*(2), 225–227.

Peterson R.T. (2006). Futurism: Its potential and actual role in MBA education. *Journal of Education for Business, 81*(6), 334- 344.

Pfeffer, J., & Fong, C. (2002). The end of business schools? Less success than meets the eye. A*cademy of Management Learning and Education*, *1*(1), 78-95.

Pless, N., Maak, T., & Stahl, G. K. (2011). Developing responsible global leaders through International service-learning programs: The Ulysses experience. *Academy of Management Learning and Education*, *10*(2), 237-260.

Podolny, J. M. (2009). The buck stops (and starts) at business school. *Harvard Business Review*, *87*(6), 62-67.

Porter, L.W., & McKibbin, L. E. (1988). *Management education and development: Drift or thrust into the 21st Century?* New York, NY: McGraw-Hill.

Quinn, R. E. (1988). *Beyond rational management*. San Francisco: Jossey-Bass.

Quinn, R. E., Bright, D., Faerman, S. R., Thompson, M. P., & McGrath, M. R. (2014). *Becoming a master manager: A competing values approach* (6th ed.). Hoboken, NJ: John Wiley & Sons.

Rainwater, T. S. M. (2016). Teaching and learning in competency-based education courses and programs: Faculty and student perspectives. *The Journal of Competency-based Education*, *1*(1), 42–47.

Rasche, A., Gilbert, D. U., & Schedel, I. (2013). Cross-disciplinary ethics education in MBA programs: Rhetoric or reality? *Academy of Management Learning & Education, 12*(1), 71-85.

Richards-Wilson, S. (2002). Changing the way MBA programs do business: Lead or languish. *Journal of Education for Business*, *77*(5), 296-300.

Rubin, R. S., & Dierdorff, E. C. (2009). How relevant is the MBA? Assessing the alignment of required curricula and required managerial competencies. *Academy of Management Learning & Education, 8*(2), 208–224.

Sharma, B., & Roy, J. A. (1996). Aspects of the internationalization of management education. *Journal of Management Development*, *15*(1), 5-14.

Shimoni, B., & Bergmann, H. (2006). Managing in a changing world: From multiculturalism to hybridization: The production of management hybrid cultures in Israel, Thailand, and Mexico. *Academy of Management Perspectives*, August, 76-90.

Tagg, J. (2012). Why does the faculty resist change? *Change: The Magazine of Higher Learning*, *44*(1), 6-15.

Thomas, H., & Cornuel, E. (2012). Business schools in transition: Issues of impact, legitimacy, capabilities and re-invention. *Journal of Management Development*, *31*(4), 329-335.

Wankel, C., & DeFillippi, R. (2006). *New visions of graduate management education*. Greenwich, CT: Information Age Publishing.

Whetten, D. A. & Clark, S. C. (1996). An integrated model for teaching management skills. *Journal of Management Education,* 20, 152-181.

DEVELOPING A KNOWLEDGE WORKER (SIX SIGMA) COMMUNITY OF PRACTICE: A CASE STUDY

Alyncia M. Bowen, D.B.A.
Dean of Doctoral Studies
Franklin University
201 South Grant
Columbus, OH 43215
614-947-6215
alyncia.bowen@franklin.edu

ABSTRACT

Communities of practice are developed as a means of sharing and perpetuating organizational learning. The literature is filled with individual studies that focus on knowledge management, organizational learning, communities of practice, and Six Sigma outcomes. It does not illustrate the inherent relationship between these thoughts and practices. The results of this case study concretely promote the involvement of senior leadership in the development of the Six Sigma infrastructure, the need for a commitment to the knowledge worker, a formal infrastructure prior to implementing the management model and formal education/training. Likewise, the must be a means for developing and sharing best practice models.

INTRODUCTION

The idea of communities of practice is not a new phenomenon. Guptil (2005) observed that Wenger, the leading practitioner and author of *Cultivating Communities of Practice*, is considered to be the "authoritative source" (p. 11) on the concept of communities and their role in transferring knowledge. Wenger (2001) stated that "although communities of practice have been around for thousands of years, the term has just recently entered the business vernacular" (p. 40). It is believed that Jean Lave and Etienne Wenger first noted the term in 1991. One of the notable outcomes of informal communities of practices is that they serve as a "means of facilitating knowledge creation, access, and exchange as a basis for generating capabilities" (Saint-Onge & Wallace, 2003, p. 12).

Communities of practice, either formal or informal, are developed as a means of sharing knowledge and perpetuating organizational learning. With origins tied to the social theory of learning, CoP's haves evolved to encompass a group of people who share a concern, set of problems, or passion about a topic (Brown, Collins, & Duguid, 1989; Lave & Wenger, 1991).

According to Saint-Onge and Wallace (2003) and Alvesson and Karreman (2001), a variety of academic orientations, including communities of practice and organizational learning, reside under the umbrella of knowledge management. Choo (as cited in Saint-Onge & Wallace, 2003) stated that knowledge management "is a framework for designing an organization's goals, structures, and process so that an organization can use what it knows to learn and to create value for its customers and community" (p. 29). A means for creating value is in the identification and utilization of knowledge workers. The term was originally introduced by Peter Drucker in 1959 in his book, *Landmarks of Tomorrow*. While there is no succinct definition, for this writing a knowledge worker "someone who is employed because of his or her knowledge of a subject matter, rather than the ability to perform manual labor" (Serrat, 2008, Para. 1).

This author believes that Six Sigma as business management model uses specially trained individuals to solve business problems. Within the Six Sigma paradigm, the trained practitioners are the conduits for organizational learning, knowledge creation, dissemination, and management. While the literature does not reflect it, there is an inherent relationship between the Six Sigma management model, knowledge management, and organizational learning. The development of a community of practice among trained Six Sigma practitioners assists in the sharing of knowledge, thereby creating an environment conducive to learning. Based on the afore stated definition of a knowledge worker, this author believes that the unique training provided to practitioners makes them subject matter experts known as knowledge workers.

According to Wenger, McDermott, and Snyder (2002), there are three fundamental characteristics of a community of practice: domain, community, and the practice. *Domain*, in this inference, provides individuals with an identity based upon the involvement with the defined community of practice. This element aligns with the theory of social learning element of individuals as social beings. In relation to Wenger's (1998) model, participants are given an identity based upon their involvement in the community of practice. The second characteristic, *community*, is developed through the relationship building that takes place. This relationship cultivates a platform for learning. The last characteristic, *practice*, provides the practitioners with a repertoire of resources, including, but not limited to, tools, experiences, and ways to address recurring problems (Wenger, 1998).

PROBLEM

A review of the literature suggests that it is robust on the facets of knowledge management and learning organizations. It is also rich in illustrating the impact of the Six Sigma management model on organizational outcomes (processes and financial outcomes). Missing from the literature is the description of the inherent relationship between Six Sigma practitioners, organizational learning, and knowledge management, and the role of communities of practice within this infrastructure. Deckmyn (1999) suggested that communities of practice are necessary in order to perpetuate knowledge management. Six Sigma practitioners are knowledge workers who perpetuate knowledge. Drucker (1994) believed that these individuals—knowledge workers—are trained specialists who share their skill through learning and sharing.

While the literature is robust in demonstrating the effectiveness of knowledge sharing in communities of practice (Allee, 2003; Gongla & Rizzuto, 2001; McDermott, 1999; Persaud, Kumar, & Kumar, 2001), the literature does not provide an infrastructure for developing a community of practice in a knowledge-based learning paradigm such as Six Sigma. Knowledge workers such as Six Sigma practitioners typically do not function within a community of practice. This case study describes the factors that influenced the development of a community of practice among the practitioners known as knowledge workers who were trained in Six Sigma principles. Specifically, this research examined the experience and learning that occurred in the case study organization.

LITERATURE REVIEW

Learning is both a product and a process. The literature is robust with descriptors that support this belief (Brown & Duguid, 1991; Davenport & Prusak, 1998; Wenger, 1998). Brown and Duguid argued that communities of practices are social structures that blend learning, working, and innovation into the day-to-day operations of the work setting (as cited in Huysman, 2000). Huysman further noted that in management studies, the community concept is explored in fields of e-commerce, management and employee learning, innovation, and knowledge management. Abel (2008) (as cited by Rozewski, Brodka, & Michalski, 2015) noted that in "many industry sectors the community of practice is recognized as a key to improving performance" (p.6).

Knowledge management has been presented as a technical modality for sharing knowledge. McElroy (2000) suggested that the first generation of knowledge management was focused on information technology and systems. Over time, this original thought evolved into the belief that knowledge management has not one but two foci. The second generation of thought, according to Hovland (2003), focuses on organizational processes and the creation of new knowledge. This progression in the views of knowledge management provides a path for the shift in knowledge management toward the development of communities of practice. Hovland (2003) further believed that studying processes through which knowledge is created and shared also provides a gateway for learning about the relationships within a community.

Building a Community of Practice

A sense of purpose should be used as the foundation for constructing a community of practice. Allen (2005) provided six steps that are essential in building a community of practice: (a) identify its purpose, (b) decide how to evaluate its success, (c) identify the appropriate infrastructure, (d) develop and present a business plan, (e) establish and educate its members, and (f) evaluate and modify the community of practice regularly.

Deckmyn (1999) observed that "each community is led by a generally recognized thought leader who typically spends cumulative total of three or four weeks per year working on maintaining the community" (p. 45). The thought leader is the individual who facilitates the development of the community. The purpose of the community leader is to orchestrate the initial community and then to collaborate with the practitioners in a manner that promotes continuous learning and knowledge management. While the participants in a community of practice do not have to work together every day, they do need to interact regularly. This author believes that the leader and/or the community determine the definition of regular.

Knowledge Management

Liebowitz (2000) suggested that knowledge management is the contextualization, review, consolidation, and action phases of creating, securing, combining, coordinating, and retrieving knowledge. An offspring of knowledge management, communities of practice are forums for generating, sharing, and securing knowledge in a manner that improves organizational performance and/or practitioner performance. Guptil (2005) believed that "knowledge management encompasses the social context of others' experiences and the 'lessons learned' in the process" (p. 11). This belief embraced Wenger's social learning theory, which emphasizes the interrelatedness of organizational learning and the concept known as communities of practice. The right combination of the right people, processes, and technology is maintained through an internal culture that views a community of practice as a gathering place for individuals with a shared experience.

Knowledge Worker

Drucker (1994) would suggest that the identification of intellectual capital would also mean that an organization is familiar with its knowledge workers. Knowledge workers are individuals who use their intellect or knowledge in order to create new products or processes. Drucker would define Six Sigma practitioners as knowledge workers. The very nature of the work of Six Sigma practitioners—to modify and/or create processes that positively influence the organization's profitability, customer service, and employee satisfaction—meets the definition of a knowledge worker.

What makes the knowledge worker valuable is their ability to work within his or her core competencies as it relates to the organization. "Core competencies are abilities that are unique to the company in the market" (Ligen & Zhenlin, 2010, p. 602). The key to the successful operation of an organization is to effectively manage the process of transferring knowledge (Dong et al., 2012, Rozewski et al., 2013, as cited by Rozewski, Brodka and Michalski, 2015).

The process of sharing knowledge unifies knowledge management and the concept of community of practice. It has also been noted that the sharing of knowledge only occurs when there is trust (Guo et al., 2005, as cited by Rozewski, Brodka, & Michalski, 2015). Furthermore, within a community of practice trust is what facilitates effective knowledge flow that supports task-relevant knowledge to a community member that helps them fulfill their knowledge needs quickly and effectively (Liu et al., 2013, as cited by Rozewski, Brodka, & Michalski, 2015).

Six Sigma

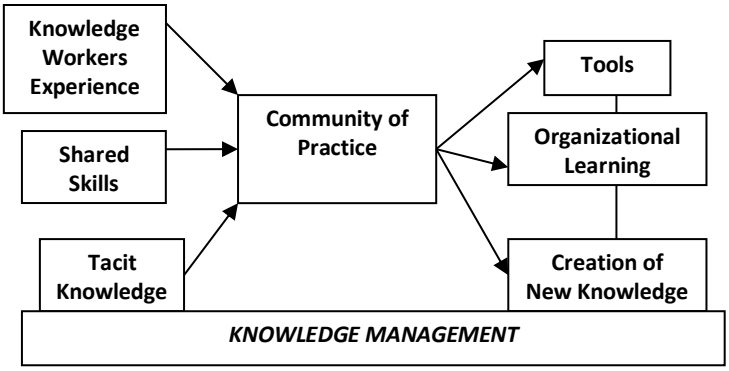
Six Sigma is a management model that originated in the 1980s by an employee of Motorola. While the original intent of the model was designed as a means of ensuring the organization's existence, it has since evolved into a modality for communicating organizational changes and outcomes. When a Six Sigma community of practice is developed, organizations are providing the practitioners, knowledge workers, with a forum for communicating and sharing knowledge, experiences, and outcomes. They also provide a platform for the development of tools and other resources that enhance overall organizational effectiveness. Lastly, they are creating an environment that promotes and facilitates learning

Organizational Learning

Individuals trained in Six Sigma principles are known as practitioners. Drucker (1994) would call them knowledge workers due to the level of skill required to perform their work. Within the constructs of a learning organization, the practitioners are disciples (Senge, 1990). These practitioners (disciples) help to normalize the impact of the learning or change initiative. Peddler et al. (as cited by Dodgson, 1993) suggested that the learning organization has a climate in which individual members are encouraged to learn and develop their full potential. It expands their learning culture to include customers, suppliers and other stakeholders. It makes human resource development strategy central to business policy and continuously undergoes a process of organizational transformation.

A well-developed community of practice embodies the ability to learn and collaborate in a manner that promotes an organization's strategy. Jagasia, Baul, and Mallik (2015) suggest that recently it has been observed the communities of practices are also tools for learning and change within an organization. The literature is filled with research supporting the role of a community of practice within a learning organization. Missing from the literature is the exploration of a community of practice for skilled Six Sigma practitioners. The work of seminal leader Wenger, in this writer's opinion, is based upon Bandura's social theory of learning. Wenger's model expanded the literature in a manner that promoted enlightenment on the concept of communities of practice. Figure 4 was constructed as a means of bridging the gap between historical work and the work that is presented in this study.

Figure 1: Bowen (2007) – Community of Practice within a Six Sigma Community



METHODOLOGY

Case study research is essential in providing clarity on complex Phenomena. Yin (2003) defined case study research as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomena are not clearly evident" (p. 13). Soy (1996) furthered Yin's definition by suggesting that the case study method is a mechanism for discovering relationships.

The case organization developed a community of practice among individuals trained in Six Sigma. The current vice president of patient care services, formerly the vice president of deployment for Six Sigma, stated that, to her knowledge "and per the guidelines provided for the development of a Six Sigma program, communities, such as the one developed, were not a norm" (personal communication, September 12, 2007). Due to the uniqueness of this event and the perceived positive outcome, it was believed the case study methodology would capture why and how this community of practice was developed.

This study was a descriptive, single-case study. This method was selected due to the descriptive, exploratory nature of this research and because this study had the potential to continue to evolve during the research process. This is a characteristic of case study research (Creswell, 2003; Stake, 1995; Yin, 2003). Descriptive case studies provide detailed descriptions, and an explanation and evaluation of the case phenomenon. The rich, complex details that embody the development of a community of practice in the case organization supports the need for the use of the qualitative cast study research design.

Data was collected from in-depth one-on-one interviews, archival history, and documentation. Semi-structured, in-depth interviews were the primary means for collecting data. According to Vuckovic (2002), this provides an opportunity for the researcher to learn about the participants' experiences—physical, emotional, or spiritual. The secondary means for obtaining data was by reviewing the descriptors of the activities that could not be directly observed. The review of historical documentation proved to be vital in relaying the history of the Six Sigma story at the research organization.

The sampling was limited to the individuals involved in the formal development of the community of practice and a few of the practitioners who participated in the community at its inception. The total number of participants in this study was 15: 2 deployment leaders, the current Six Sigma leader, 3 Master Black Belts, and 9 practitioners who were members of the initial community. Creswell (2003) suggested that an acceptable number for a case study can range from 5 to 25. Yin (2003) stated that if the goal is to generalize the outcome, then the sample size needs to be larger. Based on these findings, the sample size of 15 was feasible for the desired outcome.

ANALYSIS AND INTERPRETATION

The foundation of this study was to determine the factors that influenced the development of a community of practice among Six Sigma practitioners within a health care environment. The narrations from the semi-structured, in-depth interviews of the practitioners are presented in a descriptive manner. Each narration addresses the four research questions:

1. What factors influenced Six Sigma trained practitioners at The Source Health System in the development of a community of practice?
2. What was the role of knowledge management in the development and implementation of the community of practice at The Source Health System?
3. What is the relationship between organizational learning and the development of the community of practice for practitioners trained in Six Sigma at The Source Health System?
4. Why did The Source Health System choose to create a community of practice among its Six Sigma practitioners?

The Case Organization

The Source Health System (a pseudonym) has been a provider of health care in central Ohio since its founding in 1886. At its inception, the hospital was a four-story, red-brick building with two wards, one operating room, 18 private rooms, and an amphitheater. Today, The Source Health System is a member of Primary Purpose Health (a pseudonym), the third largest Catholic health system in the United States. Today, The Source Health System has evolved from that four-story brick building into four hospitals, numerous outpatient clinics, urgent care, physician practices, home care, hospice, rehabilitation services, and a College of Nursing. A leading employer in the community.

The Source Health System employees over 7,500 employees and has over 1,600 physicians. Along with its acute care services, the organization is known for its wellness programs, education and prevention programs, and the community care provided. The Source Health System has maintained its Catholic identity and lives its mission through the provision of care to the poor and indigent population. While serving over 100 years its community the organization has demonstrated its commitment to maintaining a powerful presence.

Fall of 2000, the leadership of The Source Health System began experiencing a decline in financial stability, patient volume, and reimbursement from payers. While on a retreat, the CEO was introduced to Six Sigma, a management model formulated by Motorola in the early 1980s but made popular by General Electric in the mid-1990s. According to Pande et al. (2000), Six Sigma is a problem-solving and process-improvement methodology that uses statistical tools to dramatically reduce defects (errors) and cycle times, lower inventory, and increase efficiency while lowering costs.

Description of the Sample

This section provides a brief description of the research participants. Fifteen individuals consented to participate in this study. Each participant was asked the 12 questions presented on the interview schedule. The participation information is noted in the below table.

Table 1. Participant Information

Participant type	Code	No. Participants Per category
Deployment leader (original)	DL1	1
Second deployment leader (and one of the original MBBs)	DL2	1
Master Black Belt	MBB	3
Current leader	CL	1
Black Belt	BB	9

Documents

The Source Health System provided electronic access to the following types of documents: community member roster, community meeting rosters and agendas, the deployment plan, project information, project-tracking dashboard, return on investment (ROI) information, on-site meeting information, and history of the community. The community roster information provided the names of the original 44 participants of the Six Sigma community. It also provided the contact information of the Black Belts, Master Black Belts, and community leaders (development leaders and current leader).

Data Collection

Pilot Test

Prior to beginning the data collection, a pilot study was conducted. The intent of the pilot study was multifaceted: to ensure that the research tool would capture the data required for this study, to test the research design, and to identify opportunities to modify the study prior to beginning the study. The result of the pilot test was favorable. The final results yielded the desired outcome and the feasibility of conducting the interview within the expected 1-hour time frame. According to the Black Belt pilot test participant, currently a director at The Source Health System with 18 years of experience, "The tool was easy to read and follow. . . . I found it beneficial to have the questions and definitions prior to the interview. It afforded me the opportunity to make notes about key facts that I wanted to include." The pilot study was conducted on December 12, 2008.

Data Collection for the Study

The data collection was obtained through the use of a semi-structured, in-depth interview schedule. The 15 participants were selected from the 44 original practitioners. Each individual was contacted via telephone to request his or her participation in the study. The first 15 persons accepted. Promptly after the telephone conversation, scheduling of the one-on-one interviews took place. The first interview took place on December 22, 2008, at 10:00 a.m. and the final interview took place on February 6, 2009, at 2:30 p.m. When feasible, each interview took place in the participant's office. The setting was contingent upon the participant. In total, three interviews took place in the researcher's office at the request of the participants.

The average time participants spent in the interview process was 43 minutes; the minimum time was 30 minutes and the maximum time was 60 minutes. Prior to each interview, each

participant received a letter confirming the meeting time, date and location, a copy of the interview schedule, and a letter that provided the definition of key terms. The purpose of providing the interview schedule in advance to the interview date was to provide each participant with an opportunity to think about the answers and to minimize personal discomfort with answering the questions. Lastly, the questions were provided in advance to provide each participant with enough information to make an informed decision regarding continuing to participate in the study. Each interview was audiotaped and labeled per the date and time of the interview. No personal names were used to label the audiotape and no equipment malfunctions occurred during the recording of the interview sessions. Prior to beginning the interview, the researcher reviewed the consent and answered any questions that arose. Upon concluding the review of the consent, each participant was asked to sign the study consent. This process was recorded. Each participant complied.

After the data were collected during the interview session, it was transcribed verbatim by this author. As noted in the confirmation of the meeting letter, the transcription process was to take two to three weeks. This time frame was maintained for the first five interviews. In January 2009, the case organization went through a downsizing. Approximately 300 people lost their jobs. As a note of sensitivity, the researcher delayed the interviewing process. The interview and transcribing process resumed on January 14, 2009.

Each participant was e-mailed and, if requested, mailed via U.S. Postal Service, a copy of the transcript and consent. The participant was asked to review and provide edits, if necessary, to the transcript. Many of the participants did not provide substantive feedback. Many of the edits were due to incomplete sentences or changes in job titles. While the intent was to have the transcript reviewed and returned within three to five business days, it typically took 2 weeks to receive the reviewed transcript. The final reviewed transcript was returned April 8, 2009.

DATA ANALYSIS OF RESEARCH QUESTIONS

Narrative responses were achieved through the semi-structured interviews that utilized open-ended questions. Each interview began with the researcher describing the process and stating that it would begin with a few demographic questions and then delve into the other questions. Quotes from the participants are provided to validate or support the findings of this study. There were 12 questions in the interview guide. Table 2 the relationship between the research questions and interview questions. Please note that each question was validated during the pilot test of the interview guide.

Table 2. Research Questions and Interview Guide

Research Question	Interview Questions
RQ1: What factors influenced Six Sigma trained practitioners at The Source Health System in the development of a community of practice?	4,5
RQ2: What was the role of knowledge management in the development and implementation of the community of practice at The Source Health System?	7, 10, 12
RQ3: What is the relationship between organizational learning and the development of the community of practice for practitioners trained in Six Sigma at The Source Health System?	6, 12
RQ4: Why did The Source Health System choose to create a community of practice among its Six Sigma practitioners?	4, 10

Questions 1 and 2 of the interview schedule were designed to help provide a frame of reference for each participant. To this researcher's surprise, the median years the practitioners worked at the case organization was 18; the mode was 16 years. While this was not a factor aligned with the study, it may have a correlation to the success of the community.

The leadership structure of the Six Sigma community was simple. The reporting structure, as defined by the practitioners and Master Black Belts, was also simple. Each of the 39 practitioners (Black Belts) reported to a Master Black Belt. Each Master Black Belt reported to a Chief Operating Officer, or a division leader. There were five total "alignments." Each Master Black Belt also had an indirect reporting relationship with the deployment leader, who reported directly to the Chief Executive Officer (CEO). Due to a recent acquisition, it was not a part of the alignment infrastructure. At the time of the implementation of the Six Sigma management model, the health system had three hospitals.

Summary of Research Question 1

The responses of the participants articulated the importance of leadership in developing a community of practice at the case organization. All of the participants answered Questions 4 and 5 of the interview guide.

The leaders of the community clearly articulated the rationale for implementing the management model as a new way of doing business, and to address a decline in financial stability. Many of the Black Belts responded to the knowledge of the expectation of the role in the program and noted that the level of accountability was well known.

Each practitioner was hand-selected to participate in the training. As noted in the development plan, the first wave of Black Belts was selected in October 2000. Prior to assuming their new role, each practitioner was offered a 2-year commitment from the organization. MBB1

noted, "The 2-year commitment was different than other change initiatives." While the 2-year commitment document was made available for this researcher to review, it was requested that it not be made available for review as a part of this study. MBB3, currently a deployment leader in another organization, stated, "[The Source Health System] did a wonderful job developing the infrastructure on the front end.

At [The Source Health System], the Six Sigma people initiated and developed it. At my organization it is led and pushed by Corporate into the hospitals." It appears that having a format or infrastructure in place prior to the implementation of the management model is another contributor of success. As defined in the organization's deployment plan, training was another critical component. Prior to identifying and training the practitioners, training took place at the executive, core team, and champion levels. This foundation was paramount in addressing the "flavor of the month" concerns. Practitioners used this phrase to described the organizations failed attempts in exacting change. Some efforts happened frequently and appeared to be short lived. The practitioners wanted reassurance that they would have commitment by the organization that the Six Sigma deployment was not another short-lived experience.

The defined deployment plan s also served another function within the organization. Prior to the deployment of Six Sigma, MBB1 observed that it is important to "make sure the senior leader understands what it is and what is expected of them." BB3 noted her involvement in the deployment process: "I was brought in halfway through the planning process. My role was to say, 'What about this? Have you thought about that? How do we make this palatable?'"

Summary of Research Question 2

The sharing and transfer of knowledge are important within the Six Sigma community. Initially, sharing took place during the formal education sessions with the external consultants. The second level of sharing occurred when the practitioners collaborated to study for their exams. The third level of sharing took place when the practitioners launched a project. They used each part of the DMAIC (Define, Measure, Analyze, Improve, and Control) process to educate the team. As noted by DL1, they were teachers.

Knowledge management was experiential learning that was inculcated in the culture of the practitioners and the organization. The experiences of the practitioners were leveraged and managed at the monthly community meetings. The Six Sigma community of practice had the capacity to retain knowledge. The practitioners were skilled in this area. They knew the methodologies and they had the tools from training. But how does one retain a skill in an area in which one does not use, or, better yet, with a tool that is not used? One of the foundational principles of the community was the ability to use the resources provided.

The first community meeting was held in a shelter house at a state park. This offsite location provided an opportunity for team building and sharing. One of the primary functions of that day was to brainstorm the current and future needs of the community. What soon emerged were themes—continued learning, project sharing, tool utilization updated, and so forth.

The Master Black Belts with the assistance of the deployment leader, embarked on meeting the needs of this new community and began to develop what evolved into the monthly community meetings. MBB1 noted, "Meeting the needs of the practitioners" was one of the primary functions of the Master Black Belts. When asked whether or not this concept was "normal" within Six Sigma communities, DL1 responded:

> As far as I can see [the community meetings] were not a best practice from DuPont, Dow or any of the others I networked with. That was something we did because we saw a need. We had to stay connected as a group and we had to recognize the diversity in the candidates that we selected for the positions and the talents they brought to the table and to be able to share those talents more broadly. That was a creation that we came up with in order for us to pay it forward within our own group".

The monthly community meetings were truly a community effort. The Master Black Belts worked on and planned the agendas that were derived from the regularly scheduled needs assessments. Attendance was mandatory and participation was expected. Practitioners presented their projects and received feedback and insight from their peers. The community meetings were not part of the Six Sigma program as a whole. They were not part of the initial plan. They evolved in response to the needs of the community and the behavior of the practitioners. Although the community meetings were conceived as an informal structure, they quickly took on the rigor and structure that was well known to The Source Health System Six Sigma community. Learning, knowledge sharing, and best practice development were the primary outcomes of the community meetings.

What are community meetings? Per the infrastructure at The Source Health System, community meetings are regularly scheduled, all-day meetings. They were organized with "a focus on Six Sigma methodologies, refining skills, a commitment to learning team facilitation, change management, techniques, etc." (BB1). The meetings
took place in the same location, at the east campus. The main participants were the deployment leader, Master Black Belts, and Black Belts. The Green Belts, champions, and members of leadership were invited but were not mandated to attend.

Summary of Research Question 3

The newly trained practitioners began teaching their teams while participating in the initial 5 weeks of training by the consultant group. The practitioners learned how to utilize the tools and technology and how to manage teams. BB3 observed, "There was an assumption that each practitioner knew how to manage a team." During the formal training process, this skill had to be introduced and refined. The consulting group was passionate about working with the organization. Prior to working with this service organization, they had only worked with manufacturing companies. The consulting group was investing in learning how to apply the management model to a health care organization. As the practitioners worked with their project teams, they learned how to, as BB1 described, "translate the methodology into easy-speak." This was a learned skill that evolved over time. The ability to translate the methodology also became a means for helping the organization to understand and embrace the management model. The Six Sigma practitioners were afforded the opportunity to help the entire culture embrace the management model. Practitioners were often provided opportunities to share knowledge to the general organization. This took place during brown bag lunch events, presentations at organizational learning conferences and when engaging in a project. Practitioners were encouraged to share their knowledge with everyone that was interested, even if the individual was not actively engaged in a Six Sigma project.

One of the key deliverables, or measurable outcomes, from Six Sigma was the ability to track the financial improvements. The role of the Chief Financial Officer (CFO) and the finance

department was critical in illustrating the validity of the savings. Each practitioner was charged to complete four to five projects per year with a savings of $400,000. This was one of the known expectations of the practitioners. The first measure of success was the organization's ability to yield an ROI. By the end of the first fiscal year, the Six Sigma management model met its ROI projects. By Year 2, it began exceeding the ROI. The community maintained its high returns for five consecutive years.

Early in the implementation, the internal statistics showed, according to CL1, that "the higher the number of practitioners you have, the higher the amount of money you will make." With the primary rationale for beginning the management model being to address the organization's financial problems, this was a good outcome. As the organization continued to experience phenomenal ROI, upwards of 300%, the senior leadership team was challenged to become more accountable for the work of the practitioners. By Year 2, the practitioners were working hundreds of projects within the health system. MBB3 stated:

> We knew we had infiltrated the culture when we got to the point where people were asking for projects to get done in their area, to be on teams. We then moved from the fight to getting to the work of the project. We moved from why are you doing this to hey I have an idea for a project. That was an indication that there was a culture change.

This internal advancement incited the leadership team to develop goals for the alignments and to become responsible to the global community.

Summary of Research Question 4

The respondents articulated a consistent thought in regards to why the organization developed its community of practice. In health care, a common term used to describe the standardization of practices is *best practice*. As shared by DL1, this was achieved through the sharing of knowledge in the community meeting settings. Prior to Six Sigma, the organization embraced performance improvement measures that supported Deming's quality model. The missing element for the organization was the ability to tie financial savings to the process improvement. The engagement of the CFO during the deployment phase proved to be instrumental and somewhat critical. The ability for the case organization to "quantify" savings was important. The CFO and their designated individuals supported the model for calculating savings and the actual savings that took place.

The case organization utilized the expertise of the CFO and the financial analysts to validate savings. This often was gauged by the project's impact on the operational expenses of the organization. The utilization of financial analysts made the savings "real and measurable" (DL2).

Another factor that contributed to the formal development of the community of practice was the ability for the practitioners who shared common knowledge and purpose to develop one-on-one coaching opportunities. The ability to coach one another also refined the teaching element of the practitioners' job.

Lastly, BB5 articulated a concern for the community of practice: the lack of a succession planning program. While 14 of the 15 (93%) participants are in a position of greater influence than when they began working as practitioners, it was not achieved as a result of succession planning.

CONCLUSIONS

As illustrated in this research, there were many factors that led to the development of both the formal community of practice and informal sub-communities of practice at The Source Health System. While this case study is a single snapshot of the experience of the case organization, it will add depth to existing research on communities of practice, organizational learning, and knowledge management.

It is clear that The Source Health Systems strong leadership was important along with identifying individuals to serve as practitioners (knowledge workers) who had a proven track record of success in their current roles. In presenting the Six Sigma management model to The Source Health System community, the leadership team did so in the spirit of innovation. The goal was to create a new way of doing business. Throughout the interview process, it became apparent that leadership was critical. One of the factors that influenced the development of the Six Sigma community was leadership. Many of the participants reiterated the importance of the engagement and involvement of senior leadership. As previously noted, case studies within themselves provide a limited view into the area of study. This single case study may not be generally applied to other organizations.

According to Adams, Gupta, and Wilson (2003), "Six Sigma deployments require strong executive management and Champion commitments. Six Sigma must become a business language and culture used by all organizational stakeholders when discussing measurements of performance of business's processes, products, or services" (p. 15).

Another implication was that the organization must be prepared with a formal infrastructure and the appropriate resources (e.g., technology, etc.). The organization must also create a culture for learning and develop a platform for continuous learning and knowledge sharing. When the topic of community of practice is presented, it is often done so from the technology standpoint. This case organization realized that the people, processes, and technology were important in developing a successful community of practice.

The third implication is that knowledge management is critical to the maintenance and evolution of the Six Sigma community. When asked about the role of knowledge management in the development and implementation of the community of practice, many of the participants migrated to the tools and resources provided.

The practitioners were spoon-fed what would become explicit knowledge to them. But there was evidence of tacit knowledge. Most of this knowledge was a part of the infrastructure of the community. Each practitioner was trained on how to use the database provided to warehouse the project information. The formal database also made the reporting structured and consistent. This was important in communicating the project outcomes. It also became important as the organization became a template for others.

This research demonstrated that a community of practice can and should be formulated as a means of perpetuating organizational learning and knowledge management amongst knowledge workers. Deckmyn (1999) stated that communities of practice are necessary in order to perpetuate knowledge. In this researcher's opinion, when leaders effectively project the organizational goals and strategic opportunities, people respond and are willing to take a risk—as was the case with the Six Sigma practitioners at The Source Health System. The risk of leaving their current position to embrace this new way of doing business was minimized by the innovative manner in which the leadership of the organization presented the management model.

This community was defined as knowledge workers who are trained as Six Sigma practitioners who share a common experience and expertise. This community expands the perception and definition of community of practice developed for knowledge workers (Six Sigma practitioners). The uniqueness of the experience propagated a new way to learn. It was during the formal training phase that the case organization began defining learning as both a product and a process. As a process, learning evolved from the formal training and maintained itself on a continuum throughout. As a product, it served as a tool to help others to gain new knowledge. The ability to apply the new knowledge to the training project provided the practitioner with the opportunity to experience learning as both a product and a process.

This study reaffirms the importance of having a shared learning environment. Although the participants were unaware at the onset, their participation in the formal training began the establishment of a platform for the informal development of the community of practice. This study provided a glance into how a community is developed and why a community of practice is developed among knowledge workers. In 1966, Drucker presented the concept of knowledge workers as individuals who, by utilizing their knowledge, could perform and obtain desired organizational results (Drucker, 1994). Forty years later, business communities are still fascinated with the idea of creating knowledge workers, such that academics have argued that a community of practice can not only perpetuate knowledge but also provide an infrastructure for obtaining and maintaining organizational learning. This belief has led to the implication that the community of practice, the study of or theory of development, can serve as an umbrella to organizational learning and knowledge management.

Tapscott (2003), a practitioner, suggested that knowledge workers can be viewed through three lenses: procedural workers, heuristic, and executive. This suggests that procedural workers perform in complex jobs that require considerable knowledge and experience. Likewise, those who work in heuristic positions are known as knowledge generators. As described in this study, the Six Sigma practitioners were provided new knowledge, and, through the platform of the community of practice, both the sub-communities and the formal community were expected to share their experiences.

Initially, Drucker's 1966 definition of knowledge worker was used, but as a result of his study, Tapscott's implied definition of knowledge workers—workers who perform their work in complex environments while engaging in peer-to-peer knowledge sharing (Tapscott & Williams, 2006)—was more appropriate for this work. According to Tapscott and Williams (2006), "humanity's capacity to generate new ideas and knowledge is the source of art, science, innovation, and economic development. Without it, individuals, industries, and societies stagnate" (p. 153).

REFERENCES

Adams, C. W., Gupta, P., & Wilson, C. E., Jr. (2003). *Six Sigma deployment: World class performance*. Burlington, MA: Elsevier.

Allee, V. (2003). *The future of knowledge: Increasing prosperity through value networks*. Boston, MA: Butterworth-Heinemann.

Allen, S. (2005, August). Water cooler wisdom: How to make employees share knowledge around the water cooler into a community of practice. *Training*, *42*(8), 30–34.

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, *18*(1), 32–41.

Brown, J. S., & Duguid, P. (1991). Organizational learning and communities of practice: Toward a unified view of working, learning and innovation. *Organization Science*, *2*(1), 40–57.

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage.

Davenport, T., & Prusak, L. (1998). *Working knowledge: How organizations manage what they know*. Boston, MA: Harvard Business School Press.

Deckmyn, D. (1999). Human interaction key to knowledge. *Computerworld*, *33*(40), 45. Retrieved from http://web12.epnet.com.library.capella.edu

Dodgson, P. F. (1993). Organizational learning: A review of some literatures. *Organization Studies*, *14*(3), 375–394.

Drucker, P. F. (1994, May). *Knowledge work and knowledge society: The social transformations of this century.* Retrieved from http://www.ksg.harvard.edu/ifactory/ksgpress/www/ksg-news/transcripts/drucker.htm

Gongla, P., & Rizzuto, C. R. (2001). Evolving communities of practice: IBM global service experience. *IBM Systems Journal*, *40*(4), 842–862.

Guptil, J. (2005). Knowledge management in health care. *Journal of Health Care Finance*, *31*(3), 10–14.

Hovland, I. (2003). *Knowledge management and organizational learning: An international development perspective.* Retrieved from http:// www.odi.org.uk/RAPID/Publications/Documents/W224.pdf

Huysman, M. (2000). An organizational learning approach to the learning organization. *European Journal of Work and Organizational Psychology*, *9*(2), 133–145.

Jagasia, J., Baul, U., & Mallik, D. (2015). A framework for communities of practice in learning organizations. *Business Perspectives and Research*, *3*(1), 1-20.

Lave, J., & Wenger, E. (1991). *Situated learning*. England: Cambridge University Press.

Liebowitz, J. (2000). *Building organizational intelligence: A knowledge management primer*. Boca Raton, FL: CRC Press.

Ligan, Y., & Zhenlin, D. (2010, May 30-31). Research on the evaluation of the enterprise's core competence based on membership conversion. *2010 International Conference on Networking and Digital Society*, Wenzhou, 2010, pp. 602-603. IEEE.

McDermott, R. (1999, May/June). Learning across teams: How to build communities of practice in team organizations. *Knowledge Management Journal*, 8, 32–36.

McElroy, M. W. (2000). The new knowledge management: Knowledge and innovation. *Journal of KMCI*, *1*(1), 43–67.

Pande, P. S., Neuman, R. P., & Cavenaugh, R. R. (2000). *The Six Sigma way: How GE, Motorola and other top companies are honoring their performance.* New York, NY: McGraw-Hill.

Persaud, A., Kumar, U., & Kumar, V. (2001, March). Harnessing scientific and technological knowledge for the rapid deployment of global innovations. *Engineering Management Journal*, *13*(1), 12–18.

Rozewski, P. Brodka, J.J., & Michalski, R. (2015). Knowledge workers' collaborative learning behavior modeling in an organizational social network. *Computers in Human Behavior*. Cornell University.

Saint-Onge, H., & Wallace, D. (2003). L*everaging communities of practice for strategic advantage*. Boston, MA: Butterworth-Heinemann.

Senge, P. (1990). *The fifth discipline*. New York: Doubleday.

Serrat, O. (2008). *Managing knowledge workers*. Retrieved from https://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1173&context=intl

Soy, S. K. (1996). *The case study as a research method*. Retrieved from http://www.gslis.utexas.edu/~ssoy/useusers/1391d1b

Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage.

Tapscott, D. (2003, September 1). *Sharing leads to abundance*. Retrieved from http://www.inteligententerprise.com/030901/614change1_1.jhtml

Tapscott, D., & Williams, A. D. (2006). *Wikinomics: How mass collaboration changes everything*. New York, NY: Penguin Group.

Vuckovic, N. (2002). Integrating qualitative methods in randomized controlled trials: The experience of the Oregon Center for Complementary and Alternative Medicine. *The Journal of Alternative and Complementary Medicine*, *8*(3), 225–227

Vygotsky, L. S. (1978). *Mind in society: The development of higher mental processes*. Cambridge, MA: Harvard University Press.

Wenger, E. (1998). *Communities of practice: Learning, meaning and identity*. Cambridge, UK: Cambridge University Press.

Wenger, E. (2001, June). Organically grown. *T & D*, *55*(6), 40–42.

Wenger, E., McDermott, R., & Snyder, W. M. (2002). A *guide to managing knowledge: Cultivating communities of practice.* Boston, MA: Harvard Business School Press.

Yin, R. K. (2003). *Case study research*. Thousand Oaks, CA: Sage.

Thorn, K., & Soo, M. (2006). Latin American universities and the third mission: Trends, challenges, and policy options. *World Bank Policy Research Working Paper 4002*. Retrieved from http://siteresources.worldbank.org/ EDUCATION/Resources/278200-1099079877269/547664-1099079956815/ LAC_universities_wps4002.pdf

Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes and consequences of affective experience at work. *Research in Organizational Behavior, 18*, 1-74.

Wiig, K. M. (1993). *Knowledge management foundations: Thinking about thinking- how people and organizations create, represent, and use knowledge*. Arlington, TX: Schema Press.

Wiig, K. M. (1994). *Knowledge management: The central management focus for intelligent-acting organizations*. Arlington, TX: Schema Press.

Wiig, K. M. (1995). *Knowledge management methods: Practical approaches to managing knowledge*. Arlington, TX: Schema Press.

BUILDING A BETTER MANAGEMENT CLASS: AN ANALYSIS OF CLASS FORMAT AND INTEREST IN STUDENTS' GRADES EARNED AND STUDENTS' PERCEPTIONS OF RAPPORT

Sean Walker, PhD
The University of Tennessee at Martin
College of Business & Global Affairs
Dept. of Management, Marketing, & Information Systems
9 Business Administration Building
Martin, TN 38238
731-514-7304
swalke47@utm.edu

Lajuan Davis, PhD
The University of Tennessee at Martin
College of Business & Global Affairs
Dept. of Management, Marketing, & Information Systems
206 Business Administration Building
Martin, TN 38238
731-881-7364
ldavis91@utm.edu

ABSTRACT

The purpose of this study was to help educators identify more appropriate formats for teaching management classes. Length of class (50 versus 75 versus 150 minutes), day of the week (i.e., MWF versus TTH), and method of delivery (face-to-face, online, or distance learning) were initially used to consider whether an appreciable difference exists in student performance (grades/GPA) and/or students' perceptions of classes (specifically focusing on students' perceptions of *rapport* between students and the instructor). Results show that the Class format of management classes does significantly influence both student performance and students' perceptions of classes. Implications and future directions for research are discussed.

Faculty members' assessments of their teaching are among the most important routines they can engage in during their careers. The ability to study, analyze, deduce, and revise one's course in a manner that makes it of a greater value for both students and the faculty member is of paramount interest. While this work may be typically attributed to educational psychologists, scholars in all fields are now beginning to take a more critical look at course construction and how it affects student learning.

In recent years, accrediting bodies (i.e., AACSB in business colleges) have begun placing an ever-increasing importance on the educational merits of the classes being taught in order to maintain high accreditation standards. This increased pressure from accrediting bodies requires individual faculty members (not just departments or colleges) to conduct frequent and thoughtful assessments of classes being taught in an effort to identify any inefficiencies in educational delivery being dispersed to students.

The current work seeks to understand how key factors, often overlooked, about courses impact students' grades earned (Study 1) and student perceptions of the course and instructor (Study 2). Specifically, the current work conducts a two-study approach to assess how the format of the class, as defined by the length of class, number of class periods per week, and method of delivery (i.e., online versus on-campus versus distance learning) influence the grades earned by students in management classes at AACSB accredited institution. At the same time, because grades earned is only one part of the equation of the assessment data that can be examined for a class, the current work also analyzes how *class format* influences students' perceptions of the course and instructor (Study 2). The current study focuses on how students' perceptions of *rapport* between faculty and students change based on *class format*. The current work seeks to illustrate and underscore the importance of faculty members conducting frequent and thoughtful assessment of how classes are being structured and organized along with how the faculty member interacts with students. These factors are being studied because they have a significant impact on both grades earned by students and the perceptions of students about whether the faculty member is interested in students. This latter linkage is very important. If students perceive that a faculty member cares about them, they are more likely to open up to the faculty member thus seeking help when needed and, thus, allowing them to perform better in the classroom. This level of rapport and interaction between the faculty member and the student is, therefore, likely to allow students to earn higher grades.

PERTINENT LITERATURE

Pertinent literature for this study is divided into the following sections of, *grades earned* and *interest in students*, with research questions imbedded into each section. Each variable is discussed as it relates to the current research project. The initial purpose behind the current work was to ascertain the impact that *class format* (i.e., length of classes, number of meetings per week, and method of delivery) has on two distinct measures of class performance: (Study 1) grades earned and (Study 2) student ratings of instruction.

Grades Earned, Variable, Study 1

Grades earned by students was chosen as a variable in this study because it is a "reasonably" objective measure of student performance and thus provides a component of assessment for the merits of a class and its structure. Multiple factors such as self-esteem

(Bloom, 1977; Clemes & Bean, 1981; Kifer, 1973), internal locus of control (Garger, Thomas, & Jacques, 2010; Gordon 1977), self-efficacy (Multon, Brown, & Lent, 1991; Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004; Strayhorn, 2015), prescription clarity, personal control, personal obligation (i.e., the Triangle Model), one's motivation to perform well (Maksy & Wagaman, 2015), academic engagement (for a detailed discussion see Schlenker, Schlenker, & Schlenker, 2013), and other contextual factors such as time of the class and amount of sleep students receive (see Lassala, Burrus Jr., & Graham, 2016) have been shown to influence grades earned. Unfortunately, limited understanding exists as to how structural factors of the classroom (i.e., *class format*) can impact grades earned by students. As such, the current work seeks to provide data for this discussion as the data relate to the length of the class, number of meetings per week, and method of delivery.

Research Question 1*: Will class format influence grades earned by students?*

***Interest in students*, Variable, Study 2**

While Study 1 focused on a more objective rating of classroom performance (i.e., grades earned), Study 2 utilizes a more subjective measure of students assessing the quality of the class. *Rapport* seeks to measure whether the instructor has productive and empathetic relationships/interactions with students in a manner that allows the student to have an improved chance of success. The current discussion will center on the construct of *rapport* although other research has described, essentially, the same construct in broad terminology such as follows: affective merit (Deshpande et al. 1970), Friendly-Democratic (Gibb, 1955), Approachable, Warm, Cheerful (Turner, 1970), and Student-Teacher Interaction (Hartley & Hogan, 1972).

Rapport is "the ability to maintain harmonious relationships based on affinity for others" (Faranda & Clarke 2004, p. 274). It is perhaps the most important factor in earning higher ratings from students when an individual looks at the importance students place on it (Faranda & Clarke, 2004). *Rapport* has many important antecedents that possibly influence perceptions by students and ultimately influence the ratings faculty receive by the students on similar scale dimensions. In fact, Granitz, Koernig, and Harich (2009) note the three main categories of antecedents of rapport are as follows: approach, personality, and homophily. Approach is contingent upon the perception of the student as to how approachable the faculty member is, which may be a result of both physical and psychological factors. As evaluations relate to rapport, faculty who are deemed more approachable are likely to score higher. Personality clashes are common in virtually all interactions between individuals so that personality would also be a factor in student/faculty interaction. Faculty members who are more congruent with the personality a student needs are likely to score higher on evaluations. Finally, homophily is the extent to which similarity exists between the faculty member and the student. The greater the similarity, or at least the perception thereof, the higher the rapport between the faculty member and student. This linkage based on homophily is important because research has shown that higher levels of rapport (or variables related thereto, e.g., personality similarity, which was previously discussed) have been shown to increase student ratings (Anderson, Alpert, & Golden, 1977; Perkins, Schenk, Stephan, Vrungos, & Wynants, 1995; Thomas, Ribitch, & Freie, 1982). Furthermore, Lammers, Gillaspy, and Hancock (2017) conducted a longitudinal study supporting the impact of student-instructor rapport on grades earned. Specifically, perceptions of rapport at the beginning, middle, and end of the semester were had a significant, positive relationship with the final grade earned by the student in the class. Rapport has also been shown to influence other important factors that may have an

impact on student ratings that faculty members receive. Frisby and Martin (2010) found that perceptions of rapport by students in the classroom increased student participation, affective learning, and cognitive learning.

The purpose of the current work is to determine if other important factors influence rapport and to what extent these factors influence the students' perception on a student-rating instrument. Specifically, to what extent does the format of the class (length of the class period, meetings per week, and method of delivery) influence students' perceptions of rapport? One could hypothesize that since rapport is a perception, in part, of approachability of the faculty member, certain class formats may lend themselves to fostering increased levels of, or at least higher perceptions of, rapport between the faculty member and the student because of increased student/faculty interaction. In fact, Moore, Masterson, Christophel, and Shea (2009) found that the level of immediacy (as measured by the students' ability to make observations of the professor's verbal and nonverbal behavior) had a significantly, positive relationship with ratings of instruction. Of particular importance to the current study was the finding that this immediacy was strongly related to students' ratings of faculty/student interaction, which is a close fit with rapport measures.

> ***Research Question 2***: *Will the format of the class have a significant influence on the perceptions by students of the faculty member's rapport with students?*

With the previous research questions concerning class format posed, the following section will describe the research methods used for the study and why these methods were utilized.

RESEARCH METHOD

This study seeks to assess how structural components of a class (i.e., *class format*) impact both grades earned by students but also the students' perception of the instructor's rapport with students. The inclusion of both dependent variables in the current work is important because it analyzes two different measures of classroom performance in the same setting.

Studies 1 & 2, Sample Description

Upper-division, undergraduate business students located in a medium-sized university located in the southern United States were used in the current sampling. One thousand four hundred and thirty students (1,430) were included in the analysis of grades earned (Study 1). The current study includes all students who have received a grade in every management class taught by the lead author between Fall 2011 and Summer 2017. The only omissions are students who dropped the course and, therefore, received a W for withdrawal from the class. Six hundred forty-one students (641) were included in the analysis of student ratings of the faculty member's rapport (Study 2). The sample for Study 2 is approximately 44.8% of all the students in the classes. The difference between sample size for each analysis is a factor of data storage (all grades are stored on a central server, easily accessible whereas student ratings are not) and the mandate to submit grades versus the option for a student to submit a rating (i.e., student ratings are currently strongly encouraged but not all students elect to submit these ratings). Class sizes ranged from 6 to 47 for the analysis of grades earned but the smallest class size included for the student rating analysis was over 15. In the current analysis, classes taught with fewer than 15 students were all taught in summer sessions and student-rating instruments are not distributed during summer sessions. The

exclusion of these smaller classes does lend to increased statistical confidence in the findings presented as research (Cashin, 1995; Gillmore, Kane, & Naccarato, 1978) indicates that reliability coefficients surpass the .70 Cronbach's Alpha threshold once the class size reaches 15 students. Consequently, any inclusion of classes smaller than 15 students would need to be interpreted with caution.

Study 1, Dependent Variable, Grades Earned

The dependent variable for Study 1 was the grade earned by each student. Grades earned by students are easily accessible to the lead researcher (as the instructor of the class) and were collected and input into an Excel spreadsheet. Each letter grade entered was coded to a number in accordance with the 4.00 GPA scale (i.e., A = 4, B = 3, C = 2, D = 1, and F = 0), and a mean GPA for each course was computed.

Study 1, Analysis Method

Analysis of Variances (ANOVAs) were utilized to assess the influence of class format on the grades earned by students. The primary reason for using ANOVA in this study was its ability to minimize the probability of type 1 errors (see Ezeakacha & Salehi, 2018) and its ability to improve interpretation of significant differences between the groups included (see Wilcox, 2002).

Study 2, Rating Instrument

The student-rating instrument used by the college was developed in the early 1990s as a tool for faculty to reliably and validly measure student perceptions of the instructor and course. The overall instrument has 5 dimensions comprised of 35 items plus an additional 5 questions pertaining to demographic information. In the context of the current study, rapport is measured by a scale dimension titled, *interest in students*. *Interest in students* comprises 10 items and the Cronbach's Alpha for the current study was .976, which is consistent with initial reliability measures on the scale. Items on the instrument include the following: "Relates to students as individuals," "Is interested in students," "Is available as a mentor or informal advisor," "Encourages students to consider different viewpoints," "Discusses current developments in the field," "Provides feedback on completed work (assignments, exams) quickly enough to benefit me," "Respects student questions," "Makes student feel free to ask questions or ask for help," "Lectures at students' level of comprehension," and "Compared to other instructors I have had at this university, I would rate this instructor more favorably."

Study 2, Analysis Method

The focus of this research initially was to measure how the format of a class may influence students' perceptions of the rapport a faculty member has with students in the class. Specifically, could a student's favorability, or lack thereof, be a result of how the class is structured (commonly a component of the class that is outside of the faculty member's control)? However, consistent with findings in the literature discussed in the review above and the automatic inclusion of other important variables in the student rating instrument (i.e., five identifiers discussed in the next section are automatically included in all student rating instruments), the current work does not include additional analyses in order to ascertain a more complete picture of what influences a student's perception of the faculty member's *interest in students*. In order to more accurately understand how all of these important variables work together to influence student perceptions, the current work utilized stepwise regression analysis. Stepwise regression was used because of

its ability to measure the incremental importance or weighting of each additional variable included in the model thus providing a more accurate interpretation of the findings.

Variables Included in Model

Based on the facts that all data for grades earned and student ratings had to be self-collected and hand entered into software packages, additional demographics (such as sex, race, etc.) were not included in the analysis.

The focus of the analysis in Study 2 was to ascertain to what extent *class format* influenced perceptions of students on the "success" of the class as measured by the student- rating instrument. Of particular concern was whether structural elements of a class could influence more "relationship–oriented" metrics such as *rapport* (i.e., *interest in students*). *Class format* was coded 1 = 50-minute class periods, 2 = 75-minute class periods, 3 = summer courses, 4 = online, 5 = distance learning. Each one of these formats requires a different approach by the faculty member that may influence student perceptions of how well the faculty member relates with the students (i.e., rapport). For example, does the length of a class period alter the perception of a student's ability and/or desire to approach a faculty member in discourse (i.e., perhaps longer classes mentally fatigue students thus resulting in less "connection" with the faculty member). Summer courses are typically taught five days a week for 1 hour and 30 minutes per session over the course of a 5-week summer session. Online classes remove the ability to have high quality face-to-face interaction with the student. Distance learning classes require amendments to classes based on connectivity issues as having more discussion-oriented classes is difficult because of a lag in students at other locations receipt of the material, questions, and answers. Communication effectiveness of distance learning classes is further exacerbated as students may talk over each other when responding if the faculty member prompted the class with an "open" question (as opposed to calling on a specific person). Some research has reviewed the difference in student ratings between on-campus and distance-learning classes (Spooner, Jordan, Algozzine, & Spooner, 1999) and found no appreciable difference in ratings among special education classes. While similarities exist in classroom dissemination within all disciplines taught at a university, each discipline does present idiosyncrasies. The current work seeks to further the understanding of this potential link in the setting of management classes within a college of business as the discipline taught may have an impact on findings.

Additional information was collected on the student-rating instrument and included in the stepwise regression as, in part, an exploratory analysis to assess influence on student ratings of *rapport*. Step 2 included classification (freshman = 1, sophomore = 2, junior = 3, and senior = 4). Step 3 included *required* versus *elective*. This element was included based on findings in various literature streams that students rate classes higher based on whether the classes are required (Downie, 1952; Evans, 1969; Gage, 1961; Marsh, 1978). Step 4 included *expected grade* to ascertain if students who think they will perform well simply reward the faculty member with a higher rating. Step 5 added current GPA. The last two variables are included based on findings of a meta-analysis (Cohen, 1981) that student ratings and student achievement are highly correlated (i.e., .43–.47). Finally, Step 6 included full-time student schedules (12 hours or more per semester) versus part-time (less than 12 hours per semester) students to assess any potential impact that the course workload a student has on his/her rating of faculty. In other words, students with a heavier course workload may be overburdened with work and have lower ratings of rapport because they are more isolated.

Results, Study 1, Grades Earned

Research Question 1 postulated a relationship between *class format* and the grades earned by students in management classes but did not attempt to predict directionality of said relationship. A significant main effect for *class format* was shown, $F(4,1425) = 7.224$, $p < .001$ (see Table 1). Specifically, as seen in Table 2, Post-Hoc tests showed that teaching classes face-to-face for either 50 minutes per class or 75 minutes per class resulted in significantly higher grades earned than any other class formats. Furthermore, a statistically significant difference resulted between the 50-minute class periods and the 75-minute class periods such that grades earned were significantly higher for those in the 75-minute class period (3.19) than those in a 50-minute class period (3.04). As to Research Question 1, these findings initially suggest that the format of a class may significantly influence grades earned by students.

Because five different courses were taught during the semester and included in the data set, planned follow-up analysis was conducted to analyze specific differences. Some courses are required for majors while others are elective, and some courses are taken by students outside of the college of business, whereas other classes are taken only by college of business students. Therefore, follow-up analysis sought to analyze the presence of this overall trend in each course or detect if specific courses are more or less susceptible to being influenced by class format.

The following sections provide the reader with thorough descriptions of the specific classes used for this study. The classes used are all upper-level management classes. Some of the classes are required class for management majors and some are electives. Results of the analysis for each class are given. Discussion of results in the next sections include information on the following classes: MGT 300, Management and Behavior; MGT 303, Organizational Behavior and Theory; MGT 340, Labor Relations Management; MGT 350, Human Resource Management; and MGT 491, Current Issues in Human Resource Management.

MGT 300, Management and Behavior, Results, Study 2

Management 300 is a required class for all college of business students and for some students in other colleges (i.e., dietetics), along with being strongly recommended for students in other colleges (i.e., agricultural business). Management 300 is typically taken in the second semester of a student's sophomore year and provides a perspective on perceptions of students within their first two years of college.

As Table 3 shows, a significant main effect for *class format* was demonstrated, $F(3,734) = 9.716$, $p < .001$. Specifically, Post-Hoc Tests show (see Table 4) that students had a significantly higher grade earned in 75-minute class periods than in either summer or online formats, but the grades were not significantly different from 50-minute class periods. Students in a 50-minute class period also had significantly higher grades earned than students taking the class in summer or online. This finding is interesting because the typology of students taking classes in summer sessions are typically more proactive, trying to get ahead in their coursework, taking fewer classes, and, thus, having greater focus for each individual class. While students taking classes online are inherently more non-traditional and, therefore, typically have a better work ethic and a more flexible schedule that allows them to find time to concentrate on classwork.

MGT 303, Organizational Behavior and Theory, Results, Study 1

Management 303, during the time period included, was an elective for all management students (Note: As of 2017–2018 AY MGT 303 is a required course. This data is not included in the analysis). Management 303 is typically taken in a student's junior year and therefore provides

a perspective from "older" students who will have additional perspectives/insights based on having completed additional classes (i.e. have more experiences with faculty, especially management faculty) thus making their perspective unique from those in Management 300.

A moderately significant main effect for *class format* was demonstrated in the analysis, $F(1,168) = 3.186$, $p < .08$ such that students taking a 75-minute class period had significantly higher grades earned ($M = 3.50$) than those taking a 50-minute class period ($M = 3.15$).

MGT 340, Labor Relations Management, Results, Study 1

Management 340 is an elective for management students and an elective for all business students. Management 340 is typically taken by second semester juniors or first semester seniors and, akin to Management 303, provides additional insight into how student's perspectives may change as they progress through their program. Approximately 95% of all students taking the class were management majors.

A significant main effect for *class format* in this class was noted in the analysis, $F(1,133) = 7.133$, $p < .01$ such that students taking a 75-minute class period had significantly higher grades earned ($M = 3.64$) than those taking a 50-minute class period ($M = 3.21$).

MGT 350, Human Resource Management, Results, Study 2

Management 350 is a required class for all management students and is an elective for all business students. Management 350 is typically taken by juniors and should provide insight in the same way as Management 303.

As Table 5 shows, a moderately significant main effect for *class format* was shown in the analysis, $F(4,225) = 2.163$, $p < .08$. Specifically, Post-Hoc tests listed in Table 6 show that students taking the course in a 75-minute class period had significantly higher grades earned than both online or other (i.e., distance learning), and those taking the class in summer (5 days per week, 90 minutes per class period, for 5 weeks) had significantly higher grades earned than those students taking the class via distance learning.

An interesting finding is that students taking this course in summer sessions had significantly higher grades earned than those taking the class via distance learning. Perhaps the ability for students to "come back to material" each day of the week, along with having smaller class sizes, allows for better retention and mastery of information than students only coming to class once per week.

MGT 491, Current Issues in Human Resource Management, Results, Study 1

Management 491 is an elective for all management majors and business students but 100% of all students taking the course are management majors. Management 491 is typically taken by graduating seniors and therefore provides information about student perspectives at the last stage before graduation (thus allowing us to have a better understanding of the progression of their perspectives on the variables being measured). Data showed a practically significant difference between 50-minute and 75-minute class periods in terms of grades earned (2.66 versus 3.07 respectively), but this difference was not statistically significant (Note: based on low sample sizes 32 versus 15).

DISCUSSION STUDY 1

This study began with a Research Question, "*Will class format have a significant influence on the grades earned by students?*" and the results provide initial support for such an influence. Results point to a significantly higher *grade earned* in 75-minute class periods in comparison with all other methods of delivery for multiple different courses (and class types) taught in the management discipline. This finding is important because it provides some initial information on identifying the *class format* that best helps students perform. While the purpose of this analysis was not to ascertain "why" these findings are present, class periods that are moderate in length (e.g., 75 minutes) likely present increased efficiencies that better suit the needs of student's classroom performance, whereas, students would likely be burned out from taking classes that last longer than 75 minutes per session. This finding may suggest that night classes (i.e., 150-minute class sessions) only need to be used when necessary such as for non-traditional students who work during the day, executive programs, etc. Furthermore, the results taken as a whole may suggest that if institutions of higher education are truly focused on retention, progression, and quality of graduates, then *class format* needs to be rethought. Specifically, a Monday/Wednesday or Tuesday/Thursday schedule may best serve the needs of students based on one measure of classroom performance (e.g., *grades earned*). While these findings are interesting, a second means for analyzing *class format* was desired (i.e., student ratings of classroom instruction). As such, Study 2 seeks to ascertain whether *class format* is able to influence perceptions of classroom instruction, specifically the *rapport* built between faculty and students.

RESULTS STUDY 2: INTEREST IN STUDENTS

Research question 2 sought to analyze the influence that a structural component of a student's classroom experience such as *class format*, has on a more subjective and "soft" variable, the perception of how well students and faculty are able to relate, i.e., *rapport* (*interest in students* in this study). Additionally, the current analysis also investigated the extent of several other variables may have on said perceptions of relations between students and faculty. Analysis was initially conducted on the aggregate data (all classes) and then followed up by examining the disaggregate (each individual class). Said analysis detected meaningful differences across classes, as it relates to the presence of influence by variables in the model, and, therefore, results are reported on the disaggregated data.

MGT 300, Management and Behavior, Results, Study 2

Table 7 provides the means, standard deviations, and Pearson Correlation Coefficients for all variables included in the steps. Table 8 provides the Beta coefficients, t values, correlation coefficient, r squared, r squared change for each step, F change for each step, and degrees of freedom.

Class format is significant in Step 1, $F(1,355) = 4.476$, $p < .05$, r squared 1.2%. This step is the only step for which *class format* is significant. Each subsequent step also was significant. The addition of classification in Step 2 was the most significant variable according to r squared change as it added 32.8% ($p < .001$) explanatory power to the model. The addition of whether the course was required versus an elective also was statistically significant as it added 10.3% ($p < .001$) of explanatory power to Step 3. *Expected grade* added 11.4% ($p < .001$) in explanatory power to

Step 4. Current overall GPA added 2.1% (p <.001) in explanatory power to Step 5. Finally, whether a student was full-time versus part-time (i.e., taking 12 hours or more versus less than 12 hours) added .3% (p <.10) of explanatory power to Step 6.

Particularly interesting to the current work was the directionality of some of the findings. One such finding was that a student's perception of the faculty member's *interest in students* was higher for students with a "lower" classification. Students taking the course as second semester sophomores experienced a higher level of *rapport* with the faculty member than students taking it at junior or senior levels. A second finding of interest was that students taking the course as a required class scored it higher than those taking it as an elective, which is counter to research in the area. A third finding of interest was that those students with a lower GPA coming into the class had a higher rating for *interest in students* between themselves and the faculty member. Finally, students taking at least 12 hours during the current semester, or the semester of the rating, rated the faculty member's *interest in students* higher than students taking less than 12 hours that semester.

MGT 303, Organizational Behavior and Theory, Results, Study 2

Table 9 provides the means, standard deviations, and Pearson Correlation Coefficients for all variables included in the steps. Table 10 provides the Beta coefficients, t values, correlation coefficient, r squared, r squared change for each step, F change for each step, and degrees of freedom.

Class format is significant in Step 1, $F(1,73) = 6.819$, p <.05, r squared 8.5%. *Class format* is significant in each of the first three steps reported. Steps 2 through 5 and, therefore, the variable introduced, were also significant. Only Step 6 (*current workload*) was not significant in adding explanatory power to the model. The addition of classification in Step 2 added 16.5% (p <.001) explanatory power to the model. The addition of whether the course was required versus an elective also was statistically significant as it added 9.5% (p <.001) of explanatory power to Step 3. *Expected grade* added 25.7% (p <.001) in explanatory power to Step 4. *Current overall GPA* added 2.6% (p <.05) in explanatory power to Step 5.

Consistent with the findings for MGT 300, students with a lower classification rated faculty member's i*nterest in students* as being significantly higher. Also consistent with MGT 300, students had higher perceptions of i*nterest in students* when taking the class as a "requirement" of his/her degree as opposed to an elective. Finally, those students with lower current GPA's rated the faculty member's i*nterest in students* significantly higher than those with a higher GPA.

These findings are interesting because they suggest that students who have fewer hours in their degree programs, required to take the class, and those who are performing worse (i.e., cumulative GPA) rate the faculty member higher on i*nterest in students,* which is the opposite of most faculty members' expectations for a class. One would likely expect higher ratings from upper-class students, those with higher GPA's, and those taking the class as an elective.

MGT 340, Labor Relations Management, Results, Study 2

Table 11 provides the means, standard deviations, and Pearson Correlation Coefficients for all variables included in the steps. Table 12 provides the Beta coefficients, t values, correlation coefficient, r squared, r squared change for each step, F change for each step, and degrees of freedom.

Class format is significant in Step 1, $F(1,101) = 1.907$, p <.10, r squared 3.5%. *Class format* is significant in Step 1, 4, and 6. Steps 2 through 5 (and, therefore, the variable introduced)

were also significant. Consistent with the findings from MGT 303, Step 6 (current workload) was not significant in adding explanatory power to the model. The addition of classification in Step 2 added 8.5% (p <.01) explanatory power to the model. The addition of whether the course was required versus an elective also was statistically significant as it added 6.2% (p <.01) of explanatory power to Step 3. *Expected grade* added 38.7% (p <.001) in explanatory power to Step 4. *Current overall GPA* added 9.2% (p <.05) in explanatory power to Step 5.

Students with lower classifications still rated the faculty member's *interest in students* as higher when compared with upper-level students taking the same course. Students taking the course as a requirement versus as an elective also gave significantly higher ratings of the faculty member's *interest in students*. The students' current GPA's also provided the counterintuitive directionality that those students with a lower GPA's rated the faculty member's *interest in students* higher. Interesting to the findings was the difference in explanatory power that GPA has for MGT 340 compared to the other classes reported. Previous classes found that GPA explained approximately 2–2.5% of the students' ratings of *interest in students*, but for MGT 340 that number increases to 9.2%.

MGT 350, Human Resource Management, Results, Study 2

Table 13 provides the means, standard deviations, and Pearson Correlation Coefficients for all variables included in the steps. Table 14 provides the Beta coefficients, t values, correlation coefficient, r squared, r squared change for each step, F change for each step, and degrees of freedom.

Class format is not significant in Step 1. In fact, it is only significant in Step 4. Steps 2 through 4 and, therefore, the variable introduced, were also significant. Steps 5 and 6 were not significant, although Step 5 was close to being moderately significant. The addition of classification in Step 2 added 19.4% (p <.001) explanatory power to the model. The addition of whether the course was required versus an elective also was statistically significant as it added 53.8% (p <.001) of explanatory power to Step 3. Expected grade added 3.3% (p <.01) in explanatory power to Step 4.

These findings are interesting in of themselves because they provide both confirmation of findings in other classes (i.e., similar directionality for Steps 2 through 4) but also divergence based on the level of importance (i.e., explanatory power) each variable has. In MGT 350, whether the class was required versus an elective and student classification were the most important variables added in terms of explanatory power. *Expected grade* was significantly less important at just 3.3%, and the only instance in which this variable is less than 11%.

MGT 491, Current Issues in Human Resource Management, Results, Study 2

Table 15 provides the means, standard deviations, and Pearson Correlation Coefficients for all variables included in the steps. Table 16 provides the Beta coefficients, t values, correlation coefficient, r squared, r squared change for each step, F change for each step, and degrees of freedom.

Class format is not significant in Step 1 nor is it significant in any steps of the model. Step 4 in which *expected grade* was the only variable introduced, was significant. *Expected grade* added 55.8% (p <.001) in explanatory power to the model. While one can note that the sample size for comparison of this class is smaller than the other classes, an interesting and telling fact

emerges that *expected grade* is the only variable introduced that adds significant explanatory power to the model.

DISCUSSION STUDY 2

This study began with the research question, "*Will the format of the class have a significant influence on the perceptions by students of the faculty member's rapport with students?*" and the results provide mixed findings as to the link between the format of the class and the students' perceptions of a faculty member's rapport with students. *Class format* does play an important role in perceptions students have on the *interest in students* that the faculty member has in four of the five courses analyzed, thus suggesting that the way a course is structured significantly impacts students' ratings. Results across five different courses taught in the management discipline point to several commonalities but also several important distinctions. The other included variables have a varying amount of explanatory power based on the course, and thus the "types" of students. A student's *expected grade* had the most impact on student ratings in three of the five courses (ranging from 25.7% to 55.8%) but significantly less impact in the other two courses (3.3% and 11.4%). *Expected grade* was significant in each model, but the varying degree of explanatory power is very telling about the importance that each variable has with students. A student's current GPA had an interesting directionality finding in which the lower the student's current GPA, the higher he/she rated the faculty member on *interest in students*. *Required* versus *elective* and *classification* also had a significant impact in some of the courses. The current findings are consistent with past research that found student ratings have been shown to be influenced by expected grades (Marsh, 1980; McPherson, 2006; Stapleton & Murkison, 2001) and course structure and organization (Marks, 2000); although, the current findings present some nuances that past research has not. These findings suggest that the "type" of student enrolled in a class may require certain "tweaks" to the format of the class in order to more appropriately educate the student. Furthermore, administrators, along with faculty, may need to be more cautious and careful with how such student ratings are interpreted since a significant impact may occur on the student-rating instrument that comes from "other" factors, especially those outside of the control of the faculty member, i.e., expected grade, current GPA, and classification.

With the discussion on the results for Studies 1 and 2 complete, the following sections will address conclusions and a general discussion of the two studies conducted on how the factors of *class format* and *rapport* impact students' grades.

CONCLUSION AND GENERAL DISCUSSION

Study 1 found that *class format* had a significant impact on the *grades earned* by students in management classes. Specifically, structuring classes into a 75-minute session, twice a week, engendered the highest *grades earned* by students in the studies. More importantly, this format prevailed across multiple different courses (some required, some elective, some with management majors, etc.) thus suggesting a generalizability across disciplines (at least those disciplines related to business).

Study 2 found that *Class format* had a significant impact on a student's perception of the faculty member's *interest in students* as significance was found in four of the five classes analyzed

thus suggesting, akin to Study 1, that the generalizability of *class format* to classroom performance (i.e., grades earned or student ratings) extends outside of the management discipline and may help inform other business-related disciplines. A student's *expected grade* was the most significant variable introduced in three of the five courses and, therefore, should garner more attention from those individuals evaluating faculty performance. Perhaps student ratings need to be provided more frequently in a course (i.e., multiple times per semester) in order to eliminate the potential for this biased rating. Interestingly, both classification and current GPA had counterintuitive findings as "younger" students and those with a lower current GPA had significantly higher perceptions of the faculty member's *interest in students* than did upper-level students and/or those with a higher current GPA. Finally, whether the course was required versus elective also had a significant impact on students' perceptions of the faculty member's *interest in students* such that those who marked the class as being required had significantly higher ratings of the faculty member.

These findings suggest that the structural components of a class period can have a significant impact on the grades earned by students and the faculty's ratings provided by students. The inclusion of both dependent variables is important because both measures are used as an assessment of the classroom quality and both are used as outcome measures for both of the "main" parties in the classroom: student (*grade earned*) and faculty (student rating, in this instance, *interest in students*).

These research findings suggest that theoretical applications of assessing one's classroom performance (i.e., either the student or the faculty member) must be sensitive to all potential variables in the "black box." The inclusion of more "hard" variables such as *class format* on concepts that are "softer" perceptions of *rapport* (i.e., *interest in students*) and/or on seemingly unrelated variables (i.e., *grades earned*) must be taken into account by academicians and practitioners alike. Second, the findings that students had higher perceptions of the faculty member's *interest in students* when the student was "newer" in the degree program, had a lower GPA, and was being "required" to take the class is an interesting finding that should be examined with more research across and within business-related disciplines. Third, the presence of additional variables eliminated the magnitude of significance that some of the variables had on perceptions of *interest in students*. The mediating and moderating effects of such variables should be critiqued with a keener eye across disciplines within academia.

These findings suggest that faculty and administration must pay attention to how courses are structured. Seventy-five-minute session courses, meeting two times per week, provided for significantly higher grades earned compared to all other course administration modalities. The same structure also provided the highest student ratings on *interest in students*. Perhaps the 75-minute course sessions allow for less administrative work (i.e., asking questions about projects, answering questions, reminders, etc. that one typically sees at the beginning of a course session) and, therefore, allows a greater focus on students' comprehension of material without overtaxing the student by covering too much information at once (i.e., courses that meet once per week for 150 minutes or more). Furthermore, this work provides a reminder, or perhaps notification, to some within the literature (faculty and administrators alike) that a myriad of factors influencing student ratings that are outside of the control of the faculty member. The current work highlights three such instances: current GPA, expected grade, and classification, along with one other factor that a faculty member may have some control over, required versus elective. (Note: The faculty member has negligible control as he/she could refuse to teach one type of class in favor of teaching a class that will yield him/her higher student ratings). These findings suggest that faculty peer

reviewers and administrators must pay careful attention to student ratings and exercise caution when interpreting these numbers, especially when using this data to affect or influence decisions of tenure and/or promotion.

Strengths of the current work include the utilization of two different outcome measures of classroom performance: *grades earned* and *interest in students*. *Grades earned* provided an objective measure of performance for students while *interest in students* provided a "subjective" measure of performance for faculty. Second, the current research analyzed grades earned and student ratings across five different courses taught over a 6+ year time period to over 1,400 students. The utilization of five different courses allowed for a more in-depth look at how these variables affected a wider range of topics within the management discipline. Furthermore, the timespan included allowed for a greater snapshot of students and allowed for comparison of the same course across multiple administrations. While the preceding discussion notes some factors that provide confidence and merit to the current work, obvious limitations exist. First, student ratings are not mandatory and, therefore, did not engender full participation from students. Second, all courses included in the analysis were in the management discipline. Further research should include an analysis outside of management (both within and outside of business-related disciplines). Third, because of confidentiality/anonymity requirements, researchers were unable to gather data on demographic variables such as sex of the student, age, and race/ethnicity. Future research should strive to include these variables in analysis. Fourth, the current study was unable to pair student ratings provided with grades earned by the actual students. The ability to pair student ratings with the grades earned would have provided more comprehensive information for understanding the findings concerning expected grade and current GPA. Finally, readers must note that only one faculty member taught all of the courses included in the analysis. While this method presents a control, and thus some confidence for the current analysis, it also merits further research to assess the impact of *class format* (and the other included variables) by different faculty members.

Future research should focus on how the sex of the faculty member may impact ratings, especially "soft" ratings such as *rapport*. Prior research has shown that students have a bias toward male faculty members such that male faculty members receive significantly higher student ratings even without students knowing whether the faculty member is male such as seen in online courses (MacNell, Driscoll, & Hunt, 2015). Second, future research should analyze how other components of student ratings are impacted, including "harder" variables such as course characteristics and organization and communication skills of the faculty member.

REFERENCES

Anderson, T. W., Alpert, M. I., & Golden, L. L. (1977). A comparative analysis of student–teacher interpersonal similarity/dissimilarity and teaching effectiveness. *Journal of Educational Research*, *71*(1), 36–44.

Bloom, B. (1977). Affective outcomes of school learning. *Phi Delta Kappan*, *59*, 193–198.

Cashin, W.E. (1995). Student ratings of teaching the research revisited. IDEA paper no. 32, Kansas State University, Manhattan. Center for Faculty Evaluation and Development in Higher Education.

Clemes, H., & Bean, R. (1981). *Self-esteem, the key to your child's well-being*. New York, NY: Putman.

Cohen, P.A. (1981) Student ratings of instruction and student achievement: A meta-analysis of multisection validity studies. *Review of Educational Research*, *51*(3), 281–309.

Deshpande, A. S., Webb, S. C., & Marks, E. (1970). Student perceptions of engineering instructor behaviors and their relationships to the evaluation of instructors and courses. *American Educational Research Journal*, *7*(3), 289–305.

Downie, N. M. (1952). Student evaluation of faculty. *Journal of Higher Education*, *25*, 495–496.

Evans, E. D. (1969). Student activism and teaching effectiveness: Survival of the fittest? *Journal of College Student Personnel*, *10*, 102–108.

Ezeakacha, C. P., & Salehi, S. (2018). Experimental and statistical investigation of drilling fluids loss in porous media–part 1. *Journal of Natural Gas Science and Engineering*, *51*, 104–115.

Faranda,W. T., & Clarke, I. (2004). Student observations of outstanding teaching: Implications for marketing educators. *Journal of Marketing Education*, *26*(3), 271–281.

Frisby, B.N., & Martin, M.M. (2010) Instructor–Student and Student–Student *Rapport* in the Classroom. *Communication Education*, *59*(2), 146–164.

Gage, N. L. (1961). The appraisal of college teaching: An analysis of ends. *Journal of Higher Education*, *32*, 17–22.

Garger, J., Thomas, M., & Jacques, P.H. (2010). Early antecedents to students' expected performance. *International Journal of Educational Management*, *24*(2), 129–138.

Gibb, J. A. (1955). Classroom behavior of the college teacher. *Educational and Psychological Measurement*, 15, 254–26.

Gillmore, G.M., Kane, M.T., & Naccarato, R.W. (1978). The generalizability of student ratings of instruction: Estimation of the teacher and course components. *Journal of Educational Measurement*, *15*(1), 1–13.

Gordon, D.A. (1977). Children's beliefs in internal-external control and self-esteem as related to academic achievement. *Journal of Personality Assessment*, *41*, 383–386.

Granitz, N.A., Koernig, S.K., & Harich, K.R. (2009). Now it's personal: Antecedents and outcomes of *rapport* between business faculty and their students. *Journal of Marketing Education*, *31*(1), 52–65.

Hartley, E. L., & Hogan, T. P. (1972). Some additional factors in student evaluation of courses. *American Educational Research Journal*, *9*, 241–250.

Kifer, E. (1973). *The effects of school achievement on the affective traits of the learner*. Chicago, IL: University of Chicago.

Lammers, W. J., Gillaspy Jr, J. A., & Hancock, F. (2017). Predicting academic success with early, middle, and late semester assessment of student-instructor rapport. *Teaching of Psychology*, *44*(2), 145–149.

Lassala, C., Burrus Jr, R. T., & Graham, J. E. (2016). Business school grading on both sides of the Atlantic. *Journal of Business Research*, *69*(11), 5106–5110.

MacNell, L., Driscoll, A., & Hunt, A.N. (2015) What's in a name: Exposing gender bias in student ratings of teaching. *Innovative Higher Education, 40*, 291–303.

Maksy, M. M., & Wagaman, D. D. (2015). Factors associated with student performance in advanced accounting: A comparative study at commuter and residential schools. *Journal of Accounting and Finance*, *15*(1), 72.

Marks, R. B. (2000). Determinants of student evaluations of global measures of instructor and course value. *Journal of Marketing Education*, *22*, 108–119.

Marsh, H. W. (1978). Students' evaluations of instructional effectiveness: Relationship to student, course, and instructor characteristics. Paper read at the annual meeting of the American Educational Research Association.

Marsh, H. W. (1980). The influence of student, course, and instructor characteristics in evaluation of university teaching. *American Educational Research Journal*, *17*(1), 219–237.

McPherson, M. A. (2006). Determinants of how students evaluate teachers. *Journal of Economic Education*, *37*(1), 3–21.

Moore, A., Masterson, J.T., Christophel, D.M., & Shea, K.A. (2009). College teacher immediacy and student ratings of instruction. *Communication Education*, *45*(1), 29–39.

Multon, K. D., Brown, S. D., & Lent, R.W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology*, *38*, 30–38.

Perkins, D., Schenk, T. A., Stephan, L., Vrungos, S., & Wynants, S. (1995). Effects of rapport, intellectual excitement, and learning on students' perceived ratings of college instructors. *Psychological Reports*, *76*(2), 627–635.

Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis. *Psychological Bulletin*, *130*, 261–288.

Schlenker, B.R, Schlenker, P.A., & Schlenker, K.A. (2013). Antecedents of academic engagement and the implications for college grades. *Learning and Individual Differences*, *27*, 75–81.

Spooner, F., Jordan, L., Algozzine, B., & Spooner, M. (1999). Student ratings of instruction in distance learning and on-campus classes. *The Journal of Educational Research*, *92*(3), 132–140.

Stapleton, R. J., & Murkison, G. (2001). Optimizing the fairness of student evaluations: A study of correlations between instructor excellence, study production, learning production, and expected grades. *Journal of Management Education*, *25*(3), 269–292.

Strayhorn, T. L. (2015). Factors Influencing Black Males' Preparation for College and Success in STEM Majors: A Mixed Methods Study. *Western Journal of Black Studies*, *39*(1).

Thomas, D., Ribitch, F., & Freie, J. (1982). The relationship between psychological identification with instructors and student ratings of college courses. *Instructional Science*, *11*(2), 139–154.

Turner, R. L. (1970). Good teaching and its contexts. *The Phi Delta Kappan*, *52*(3), 155–158.

Wilcox, R. R. (2002). Understanding the practical advantages of modern ANOVA methods. *Journal of Clinical Child and Adolescent Psychology*, *31*(3), 399–412.

APPENDIX

Table 1: ANOVA for ALL Management Classes

	GPA MEAN (S.D.)				
	MWF	**TTH**	**Summer**	**Online**	**Other**
	3.04 (.985)$_{a}$	3.19 (.904) $_{ab}$	2.91 (1.01)$_{b}$	2.80 (1.15) $_{ab}$	2.56 (1.09) $_{ab}$
N	697	380	88	249	16

Note. Cell means that share subscripts are significantly different from each other

Table 2: Post-Hoc Tests

GPA		
Class Format	**Class Format**	**Significance**
MWF	TR	p<.05
	Online	p<.01
	Other	p<.10
TTH	Summer	p<.05
	Online	p<.001
	Other	p<.05

Table 3: ANOVA for MGT 300

	GPA MEAN (S.D.)			
	MWF	**TTH**	**Summer**	**Online**
	2.99 (.996)$_{a}$	3.05 (.993)$_{b}$	2.14 (1.22)$_{ab}$	2.49 (1.23) $_{ab}$
N	378	242	7	111

Note. Cell means that share subscripts are significantly different from each other

Table 4: Post Hoc Tests

GPA		
Class Format	**Class Format**	**Significance**
MWF	Summer	p<.05
	Online	p<.001
TTH	Summer	p<.05
	Online	p<.001

Table 5: ANOVA for MGT 350

	GPA MEAN (S.D.)				
	MWF	**TTH**	**Summer**	**Online**	**Other**
	3.05 (.945)	3.36 (.645) $_{a}$	3.15 (.812)$_{b}$	3.09 (.945) $_{a}$	2.79 (1.19) $_{ab}$
N	20	56	39	82	33

Note. Cell means that share subscripts are significantly different from each other

Table 6: Post-Hoc tests

GPA		
Class Format	**Class Format**	**Significance**
TTH	Online	p<.10
	Other	p<.01
Summer	Other	p<.10

Results – Study 2 on Interest in Students Rating
300 - Interest in students
N = 357

Table 7: Means, Standard Deviations, and Pearson Correlation Coefficients

Variable	M	SD	Interest in Students	Class Format	Classification	Required vs Elective	Expected Grade	GPA
Interest in Students	4.78	.364						
Class Format	1.46	.499	.112					
Classification	3.04	.646	-.582	-.252				
Required vs Elective	1.05	.225	-.497	-.067	.333			
Expected Grade	1.56	.627	-.690	-.062	.670	.387		
Current GPA	3.53	.999	-.651	-.176	.780	.350	.716	
Workload Current Semester	1.97	.165	-.101	-.049	.274	.040	.151	.294

Table 8: Beta coefficients, t values, r, R squared, R squared change, F change, and Degrees of Freedom

			Model **Interest in Students**				
Variable	*B*	*t*	r	R ^2	Change R^2	F Change	df 1, df 2
Step 1							
Constant	4.666	78.824****					
Format	.081	2.116**	.112	.012	.012	4.476**	1,355
Step 2							
Constant	5.838	57.946****					
Format	-.027	-.837					
Classification	-.333	-13.270****	.584	.340	.328	176.080****	1,354
Step 3							
Constant	6.214	59.883****					
Format	-.023	-.761****					
Classification	-.269	-10.985****					
Req. vs Elect.	-.550	-8.066****	.666	.443	.103	65.065****	1,353
Step 4							
Constant	5.922	60.649****					
Format	.016	.574					
Classification	-.099	-3.502***					
Req. vs Elect.	-.411	-6.560****					
Expected Grade	-.274	-9.511****	.746	.557	.114	90.457****	1,352
Step 5							
Constant	5.927	62.130****					
Format	.012	-.454					
Classification	-.021	-.642					
Req. vs Elect.	-.395	-6.411****					
Expected Grade	-.223	-7.268****					
GPA	-.094	-4.231****	.761	.578	.021	17.902****	1,351
Step 6							
Constant	5.691	33.385****					
Format	.011	.399					
Classification	-.027	-.822					
Req. vs Elect.	-.389	-6.349****					
Expected Grade	-.218	-7.074****					
GPA	-.101	-4.466****					
Workload	.134	1.667*	.763	.582	.003	2.777*	1,350

*p<.10, **p < 0.05, ***p < 0.01, ****p< 0.001

Table 9: Means, Standard Deviations, and Pearson Correlation Coefficients
303 - Interest in students
N = 75

Variable	M	SD	Interest in Students	Class Format	Classification	Required vs Elective	Expected Grade	GPA
Interest in Students	4.76	.417						
Class Format	1.25	.438	.292					
Classification	3.63	.564	-.331	.224				
Required vs Elective	1.55	.501	-.525	-.085	.636			
Expected Grade	1.59	.680	-.769	-.279	.473	.633		
Current GPA	3.41	.902	-.673	-.132	.600	.749	.745	
Workload Current Semester	1.96	.197	-.119	-.194	.350	.224	.177	.322

Table 10: Beta coefficients, t values, r, R squared, R squared change, F change, and Degrees of Freedom

			Model **Interest in Students**				
Variable	*B*	*t*	r	R ^2	Change R^2	F Change	df 1, df 2
Step 1							
Constant	4.410	31.205****					
Format	.278	2.611**	.292	.085	.085	6.819**	1,73
Step 2							
Constant	5.416	19.110****					
Format	.367	3.685****					
Classification	-.308	-3.985****	.501	.251	.165	15.884****	1,72
Step 3							
Constant	5.301	19.693****					
Format	.271	2.760***					
Classification	-.095	-.961					
Req. vs Elect.	-.348	-3.208***	.588	.346	.095	10.292****	1,71
Step 4							
Constant	5.348	25.305****					
Format	.070	.846					
Classification	.040	.506					
Req. vs Elect.	-.088	-.942					
Expected Grade	-.434	-6.729****	.776	.603	.257	45.280****	1,70
Step 5							
Constant	5.426	26.003****					
Format	.065	.807					
Classification	.076	.961					
Req. vs Elect.	.004	.036					
Expected Grade	-.356	-4.962****					
GPA	-.137	-2.215**	.793	.629	.026	4.905**	1,69
Step 6							
Constant	5.184	14.941****					
Format	.090	1.049					
Classification	.050	.593					
Req. vs Elect.	.015	.147					
Expected Grade	-.343	-4.680****					
GPA	-.148	-2.345**					
Workload	.157	.873	.796	.633	.004	.762	1,68

*p<.10, **p < 0.05, ***p < 0.01, ****p< 0.001

Table 11: Means, Standard Deviations, and Pearson Correlation Coefficients
340 – Interest in Students
N = 103

Variable	M	SD	Interest in Students	Class Format	Classification	Required vs Elective	Expected Grade	GPA
Interest in Students	4.79	.409						
Class Format	1.30	.461	.186					
Classification	3.79	.457	-.324	-.204				
Required vs Elective	1.67	.473	-.356	-.080	.397			
Expected Grade	1.63	.714	-.737	-.076	.507	.449		
Current GPA	3.64	.815	-.642	.056	.582	.682	.680	
Workload Current Semester	1.98	.139	-.071	-.061	.398	.200	.125	.285

Table 12: Beta coefficients, t values, r, R squared, R squared change, F change, and Degrees of Freedom

			Model **Interest in Students**				
Variable	*B*	*t*	r	R ^2	Change R^2	F Change	df 1, df 2
Step 1							
Constant	4.578	38.261****					
Format	.165	1.907*	.186	.035	.035	3.636*	1,101
Step 2							
Constant	5.660	15.478****					
Format	.111	1.310					
Classification	-.267	-3.117***	.347	.120	.085	9.713***	1,100
Step 3							
Constant	5.687	16.039****					
Format	.112	1.356					
Classification	-.171	-1.897*					
Req. vs Elect.	-.234	-2.729***	.426	.182	.062	7.450***	1,99
Step 4							
Constant	5.029	18.752****					
Format	.130	2.169**					
Classification	.099	1.371					
Req. vs Elect.	-.040	-.613					
Expected Grade	-.436	-9.372****	.754	.569	.387	87.840****	1,98
Step 5							
Constant	4.910	20.447****					
Format	.215	3.832****					
Classification	.228	3.312***					
Req. vs Elect.	.165	2.325**					
Expected Grade	-.318	-6.703****					
GPA	-.280	-5.132****	.813	.661	.092	26.336****	1,97
Step 6							
Constant	4.741	12.633****					
Format	.215	3.824****					
Classification	.215	2.955***					
Req. vs Elect.	.165	2.315**					
Expected Grade	-.313	-6.494****					
GPA	-.284	-5.148****					
Workload	.114	.590	.814	.662	.001	.348	1,96

*p<.10, **p < 0.05, ***p < 0.01, ****p< 0.001

Table 13: Means, Standard Deviations, and Pearson Correlation Coefficients
350 – Interest in Students
N = 72

Variable	M	SD	Interest in Students	Class Format	Classification	Required vs Elective	Expected Grade	GPA
Interest in Students	4.67	.506						
Class Format	2.00	1.007	.116					
Classification	3.63	.488	-.447	-.430				
Required vs Elective	1.21	.409	-.843	.000	.327			
Expected Grade	1.49	.605	-.646	.277	.292	.610		
Current GPA	3.49	.949	-.724	-.250	.673	.642	.588	
Workload Current Semester	1.97	.165	-.111	.169	.218	.087	.137	.177

Table 14: Beta coefficients, t values, r, R squared, R squared change, F change, and Degrees of Freedom

			Model **Interest in Students**				
Variable	*B*	*t*	r	R ^2	Change R^2	F Change	df 1, df 2
Step 1							
Constant	4.553	34.109****					
Format	.058	.973	.116	.013	.013	.947	1,70
Step 2							
Constant	6.602	12.875****					
Format	-.048	-.796					
Classification	-.507	-4.110****	.455	.207	.194	16.896****	1,69
Step 3							
Constant	6.454	22.049****					
Format	.021	.602					
Classification	-.179	-2.373**					
Req. vs Elect.	-.975	-12.003****	.864	.746	.538	144.080****	1,68
Step 4							
Constant	6.177	21.419****					
Format	.074	2.034**					
Classification	-.097	-1.293					
Req. vs Elect.	-.809	-8.763****					
Expected Grade	-.219	-3.183***	.883	.779	.033	10.129***	1,67
Step 5							
Constant	6.115	21.627****					
Format	.060	1.617					
Classification	-.026	-.305					
Req. vs Elect.	-.744	-7.457****					
Expected Grade	-.173	-2.341**					
GPA	-.090	-1.619	.888	.788	.008	2.620	1,66
Step 6							
Constant	6.194	15.727****					
Format	.064	1.619					
Classification	-.020	-.223					
Req. vs Elect.	-.745	-7.410****					
Expected Grade	-.175	-2.342**					
GPA	-.089	-1.575					
Workload	-.056	-.295	.888	.778	.000	.087	1,65

*p<.10, **p < 0.05, ***p < 0.01, ****p< 0.001

Table 15: Means, Standard Deviations, and Pearson Correlation Coefficients
491 – Interest in Students
N = 34

Variable	M	SD	Interest in Students	Class Format	Classification	Required vs Elective	Expected Grade	GPA
Interest in Students	4.81	.358						
Class Format	1.29	.462	.115					
Classification	4.00	.492	-.094	-.399				
Required vs Elective	1.82	.387	-.249	-.209	.477			
Expected Grade	1.53	.706	-.768	-.213	.348	.352		
Current GPA	3.35	.981	-.549	-.169	.565	.568	.772	
Workload Current Semester	1.94	.239	-.135	.161	.000	.540	.190	.350

Table 16: Beta coefficients, t values, r, R squared, R squared change, F change, and Degrees of Freedom

			Model **Interest in Students**				
Variable	*B*	*t*	r	R ^2	Change R^2	F Change	df 1, df 2
Step 1							
Constant	4.695	25.202****					
Format	.089	.653	.115	.013	.013	.426	1,32
Step 2							
Constant	4.885	7.296****					
Format	.071	.472					
Classification	-.042	-.294	.126	.016	.003	.087	1,31
Step 3							
Constant	4.976	7.477****					
Format	.066	.447					
Classification	.048	.308					
Req. vs Elect.	-.243	-1.311	.263	.069	.053	1.719	1,30
Step 4							
Constant	4.868	11.359****					
Format	.014	.148					
Classification	.168	1.655					
Req. vs Elect.	-.062	-.506					
Expected Grade	-.416	-6.589****	.792	.627	.558	43.417****	1,29
Step 5							
Constant	4.854	10.578****					
Format	.016	.163					
Classification	.173	1.514					
Req. vs Elect.	-.057	-.424					
Expected Grade	-.409	-4.246****					
GPA	-.008	-.093	.792	.627	.000	.009	1,28
Step 6							
Constant	4.603	7.627****					
Format	.003	.025					
Classification	.200	1.630					
Req. vs Elect.	-.114	-.704					
Expected Grade	-.403	-4.126****					
GPA	-.020	-.230					
Workload	.153	.651	.796	.633	.006	.423	1,27

*p<.10, **p < 0.05, ***p < 0.01, ****p< 0.00

BUSINESS STUDENTS' PERCEPTION OF THEIR READINESS FOR HIGHER EDUCATION STUDIES AND ITS CORRELATION TO ACADEMIC OUTCOME

Annika Fjelkner Pihl
Lecturer of Business Communication & Educational Developer
Kristianstad University
Elmetorpsvagen 15
S-291 88 Kristianstad, Sweden
+46 44 250 3105
annika.fjelkner@hkr.se

ABSTRACT

This longitudinal study explores the link between students' *ex ante* (n=184) and *ex post* (n=113) appraisals of readiness and outcomes in a business program. Results indicate that perceived readiness does not predict outcome. GPA is the strongest predictor for native Swedish speakers but not for non-native speakers in this sample. All students felt well prepared for HE studies, whereas academic outcome in nominal time indicated many were not. One implication is that teachers need to be aware of student overconfidence and early on show what is expected of them performance wise. This is especially important for underprivileged groups.

INTRODUCTION

Teachers have experienced a decline in student readiness for higher education (HE) in the last two decades (Swedish National Agency for Higher Education, 2009). Explanations for the decline are changes in the national curriculum for Upper secondary school which have led to a decline in PISA results, and an increase in the number of students admitted to HE studies. The increase has led to that students with lower grade point averages (GPA) and lower scores on the Swedish Scholastic Aptitude Test (SweSAT) also attend university, which means that there is a greater diversity in student readiness in Swedish HE today. Graduation rates are also low especially in general degree programs with a graduation rate below 50% (Swedish Higher Education Agency, 2018).

For teachers it is challenging to teach a diverse student population. The Swedish National Agency for Higher Education (2009) also pointed to how teachers experienced that academic standards declined in order to deal with low completion rates. Teachers claim the low completion rates are due to the wide spread entry-level skills among students primarily regarding reading, writing, mathematics and general knowledge. Research indicate university teachers assume or expect that students will have a range of skills, such as reading, writing, information search and mathematics skills they in fact do not have (e.g., Barrie, 2004; Jansen & van der Meer, 2007).

Additional challenges to the ranges of students' readiness to undertake HE, are their motivation (Jansen & van der Meer, 2011; Thomas, 2014) and concerns about how to support this diverse student body. The identification of at-risk students may be one way to use scarce resources most efficiently and effectively, thus benefitting the higher education institution (HEI) and students alike (Simpson, 2006). On the one hand, universities are penalized for high non-completion rates, and low-achieving students require considerable resources in terms of academic, administrative and tutorial support. On the other hand, it would be unethical to enroll students who are unlikely to succeed into demanding academic programs. Negative experiences at university may result in low self-confidence among students, while their efforts, time and money could have been spent more appropriately.

This study explored student perception of readiness in relation to academic outcome. It is the results of a longitudinal pedagogical development project carried out among a cohort of Business students enrolled at a teaching-intensive Swedish university. Many students commute, and a large share have an immigrant background or come from homes with no previous academic experience. Given that about 40% of students drop out during their first year, the overarching question was: What do we need to know about our students to better support them during their studies and to improve retention? A further aim was to research what factors affect academic outcomes in this cohort.

Teachers in the Business program believed students' shortcomings and retention problems were due to the educational background of their parents, immigrant background, long commute or overall lack of readiness for HE. Therefore, these factors and their relation to academic outcome are explored in the present study.

FACTORS PREDICTING ACADEMIC OUTCOMES

Many factors influence academic outcomes, making it difficult to predict. In this paper academic outcome is defined as total number of credits achieved in the nominal three years of study. Over the years, researchers have demonstrated correlations between academic outcomes and characteristics students possess prior to embarking on a university program. These characteristics are perceived readiness (Jansen & Suhre, 2011), preparedness (Jansen & Suhre,

2011), learning style (Biggs & Tang, 2011), motivation (Jansen & van der Meer, 2011; Simpson, 2006), intelligence (Rosander & Bäckström, 2014), GPA or previous performance (Campbell & Dickson, 1996; McKenzie & Schweitzer, 2001), personality traits (McKenzie & Schweitzer, 2001; Rosander & Bäckström, 2014; Vedel, Thomsen & Larsen, 2015), self-efficacy (Freudenberg, Brimble & Cameron, 2010; Jansen & van der Meer, 2011; Le, Casillas, Robbins, & Langley, 2005; Simpson, 2006), financial situation (McKenzie & Schweitzer, 2001), family support network (McKenzie & Schweitzer 2001) and other demographics such as gender, socioeconomic background and ethnicity (Krause et al., 2005; Trowler, 2010; Yorke, 2004).

Other factors related to characteristics of students when they are enrolled at a university also influence academic outcome such as student behavior (Jansen & Suhre, 2011), level of engagement (Kahu, 2013; Kuh, 2009; McKenzie & Schweitzer, 2001; Thomas, 2012; Trowler, 2010) and sense of belonging (McKenzie & Schweitzer, 2001; Thomas, 2012; Trowler, 2010). These are potentially the only factors a HEI can influence, because they are related to students' experiences. However, many of these identified factors are intercorrelated. For example, perceived readiness is correlated with preparedness (Jansen & van der Meer, 2011), motivation (Trowler, 2010), nationality (Jansen & van der Meer, 2011), student behavior (Jansen & Suhre, 2011) and engagement (Trowler, 2010). Preparedness also correlate with nationality (Jansen & van der Meer, 2011) and behavior (Jansen & Suhre, 2011), and self-efficacy correlate with motivation (Jansen & van der Meer, 2011; Simpson, 2006). Definitions of relevant factors are presented below, in cases when they are not self-explanatory.

As described above, student *readiness* is one of many aspects that contribute to academic outcome. One definition of student readiness is how ready students are to meet the challenges of HE and to succeed without remedial interventions – that is, how ready students are to complete a required, credit-bearing HE course they need to continue to the next course in the sequence (Conley, 2011). Many fail to meet the requirements of their first module and such failure results in a high drop-out rate that is often explained by referring to a mismatch between the HEI's and the student's expectations and skills. Barrie (2004) referred to these skills as 'precursor abilities,' which include reading, presentation, Information and Communication Technology (ICT), writing and information processing skills.

In a cross-cultural study, Jansen and van der Meer (2011) explored which aspects of readiness could predict overall *perceived preparedness*. They measured preparedness on six scales: Time management, Written communication, Group work, Information processing, ICT and Verbal communication, and found that all scales contributed to students' perception of preparedness, with the exception of ICT readiness. Furthermore, Jansen and Suhre (2011) concluded that students' perceived preparedness is linked to both study behavior and study outcome.

One way to measure preparedness is to simply ask students how prepared they feel for undertaking HE studies. Previous research showed that students' self-efficacy beliefs relates positively to academic outcome (e.g., Freudenberg, Brimble & Cameron, 2010; Simpson, 2006; Le et al., 2005). Likewise, Weine's Attribution Theory explains the positive impact of self-belief, motivation and outcome, suggesting that the more one believes one possesses the skills required for a task, the more motivated one is and the more likely one is to succeed (e.g., Jansen & van der Meer, 2011; Simpson, 2006; Weiner, 1972). Therefore, when researching factors that may predict academic outcome, it is of interest to measure students' self-rated preparedness for HE.

Student engagement is also critical to academic outcome (Kahu, 2013; Kuh, 2009; Trowler & Trowler, 2010). As mentioned above, engagement is a complex concept and correlates with many other factors, making it challenging for researchers (Kahu, 2013). Kahu (2013) defined engagement as a meta-construct encompassing four approaches to engagement

based on different perspectives: the behavioral, psychological, socio-cultural and holistic. While each approach has its advantages and challenges, all are equally important to understanding this complex concept. Kahu (2013) developed a conceptual framework that bridges the different perspectives, embedding them in the social-cultural context. While not claiming to cover all possible influences on student engagement, the model still offers a framework for understanding influences on and consequences of student engagement. In the model, student engagement and academic outcome are fundamentally embedded in a social context; student engagement is a local or even completely personal concept. This highlights the importance of conducting in-depth research on particular student populations and particular settings, which is an important starting point for the present research.

Student engagement is also linked to other variables such as motivation, time management and/or time-on-task. Students who spend considerable time and energy studying and interacting with both teachers and peers outperform those who do not (e.g., Thomas, 2012; Trowler & Trowler, 2010). Previous research has found time management skills to be important in helping students complete their assignments on time. Time management poses a challenge for some students. Van der Meer, Jansen and Toerenbeek (2010) found that only one third of students felt they had developed effective time management and study skills. The link between perception of workload and hours spent studying is not straight forward, however. Kember (2004) pointed out that estimates of hours spent on a task are often inaccurate and that students' perception of workload is a better measure than time spent on independent study or in class. He also linked excessive workload to a surface learning approach, which he explained by the fact that although students know they have to study independently, they are unsure of how to do so effectively.

Motivation correlates with readiness (e.g., Trowler & Trowler, 2010), which in turn correlates with academic outcome. One definition of motivation is "the personal investment that an individual has in reaching a desired state or outcome" (Ambrose, Lovett, Norman, & Mayer, 2010). Thus, the subjective value of the aim and expectation of being able to achieve that aim guide motivation. The value can be linked to intrinsic value (i.e., the satisfaction gained from completing the task) or to extrinsic value (i.e., external rewards such as praise or money). To summarize, many factors affect academic outcome and the review above reflects the complexity of the question.

The aim of the present explorative, longitudinal study is to measure students' self-rated readiness both *before* they start their university studies and *after* one semester, using the Readiness Experience Questionnaire (REQ). This is in contrast to previous research that has measured perceived readiness either before or during/after the first year (Jansen & van der Meer, 2011).

Researchers have explored students' self-rated readiness prior to their actual studies, thus at a time when students may have trouble assessing what is expected of them (Jansen & van der Meer, 2007). For this reason, the present study broadens the scope of previous research by exploring how students' self-rated readiness *changes* after the first semester of university studies. As research shows a mismatch between student and university expectations (e.g., Barrie, 2004; Jansen & van der Meer, 2007; Swedish National Agency for Higher Education, 2009), it is relevant to measure whether students adjust their perception of their readiness after having studied for one semester. Therefore, the present study aims to extend previous research on student readiness and compare student *ex ante* and *ex post* self-perception of readiness. It is proposed that students will moderate their *ex ante* perception of readiness to better match their actual readiness in the *ex post* answers, that is after one semester of studies.

A further aim is to explore the relationship between self-rated readiness and academic outcomes and the extent to which students' self-rated readiness (as measured by the REQ) predicts academic outcomes. This is relevant, because knowing how ex *ante* and *ex post*

perceptions predict performance can, if communicated to students, potentially change students' understanding of what they need to work on to succeed in their studies and, thus, improve their outcomes. It is also relevant for HEIs when designing and providing support to students.

A potential weakness of the use of self-assessed readiness concerns the problem of whether it is possible for students to really estimate their readiness. Research indicates that a high percentage of students feel prepared to undertake HE studies (Jansen & van der Meer, 2011). Jansen and Suhre (2011) explored the link between student self-rated readiness, study behavior and study outcomes. Overall, they found that student expectations and preparedness affected study behavior and academic outcome, although expectations and readiness differed. Students who performed better and had better study behavior also had higher self-rated readiness skills for time management and information processing. It seems that *ex ante* self-rated readiness, at least regarding time management and information processing skills, is a possible predictor of academic outcome. From an educational and institutional perspective, it seems relevant to investigate this possibility further. Thus, this study extends previous research and further explores *ex post* self-rated readiness as a predictor of academic outcome.

A final aim of the study is to identify which background factors best predict academic outcome in this cohort of business students. In sum, the study will address the following research questions:

1. In this cohort, how do students appraise their readiness prior to their studies?
2. In this cohort, how do students appraise their readiness after one semester of study?
3. In this cohort, to what extent does students' self-rated readiness predict academic outcome?
4. In this cohort, which background factors best predict academic outcome?

BACKGROUND FACTORS: THE SWEDISH CASE

In a report from 2018, the Swedish Higher Education Agency discussed widening HE participation and recruitment based on gender, social background, foreign (non-Swedish) background, and domicile (counties and municipalities) (Swedish Higher Education Authority, 2018).

Regarding gender, women are more likely to go on to HE than men are. Among 24-year-olds, 52% of women and only 36% of men were enrolled in HE. In Bachelor's level programs, an average of 60% of students are women. In business programs, however, the share of women and men is about 50%.

Students with a foreign background are categorized as: born in Sweden to two foreign-born parents, immigrated before 7 years of age, or immigrated between the ages 7 and 18 years (Swedish Higher Education Authority, 2018). On average in 2016/2017, the proportion of native students was 76%, students born in Sweden with two foreign-born parents 9% and students who had immigrated to Sweden 14%.

Social background, that is, whether students have parents with a HE degree, affects how prone young people are to go on to HE. The higher the educational level of the parents, the more likely students are to continue studying, both regarding native and non-native students. 85% of students with at least one parent with a PhD go on to higher education studies, whereas only about 22% of students from non-academic backgrounds do so. On the whole, native Swedish students and non-native students who are born in Sweden go on to higher education to the same extent (Swedish Higher Education Agency, 2018).

Retention rates differ across academic programs. On average, 76% of students continue their studies into the second year. There is a large difference across programs, with the lowest rates found for teacher education (68%) and two-year college degree (59%).

Graduation rates also differ across degree programs. Overall, the graduation rate is below 50% in general degree programs and higher in professional degree programs. The highest rates are in midwifery and medicine (89%) and the lowest in engineering (41%). Two thirds of graduates are female. The fact that many students go from one general degree program to another increases the total graduation rate slightly. The Swedish Higher Education Agency measures graduation rates based on the number of entrants to degree programs in a specific year who have been awarded a qualification six years after the official study period. Thus, there is no information on the extent to which students complete their studies in nominal time.

METHOD

The present longitudinal study explored student readiness and its relation to academic outcome in three stages. Students reported on their self-assessed readiness both prior to and after the first semester. Academic outcome was measured after three years, the nominal time for a bachelor's degree.

Setting

The study was carried out in an undergraduate Business program at a Swedish university (N=184; men: *n* =90; women: *n*=94). The university is teaching-intensive, with about 13,000 students enrolled per year. Approximately 200 students enroll in the undergraduate Business program each year. All students admitted to the program have basic eligibility. Students are admitted based on their average Upper secondary school GPA, but because certain quotas of students apply based on their results on the Swedish University Entrance Exam or on a diploma from a Swedish Folk Upper secondary school. Students also have quite diverse socio-economic backgrounds.

The cohort is also diverse regarding the number of students with a foreign background. The average rates for the university in question are 77% native students, 10% students with foreign-born parents and 13% immigrant students. In the case of the cohort under study, the proportion of native students is 63%, thus slightly lower than the national average.

Measures

The instrument used in both the first and the second stage of the study (Table 1) was the Readiness Experience Questionnaire (REQ). Jansen and van der Meer first developed the REQ in a joint project between Groningen, the Netherlands, and Otago, New Zealand, in 2006-2007 (2007, 2012). Because the aim of this study was to explore student self-rated readiness and academic outcome, only the readiness scales from the reduced REQ used in Otago are discussed. The original instrument contains both perceived readiness scales and expectation scales measuring expectations students have regarding introduction to academic skills and differences and/or similarities with Upper secondary school (Jansen & van der Meer, 2012).

Table 1

Response rate

	Distribution	Population	Respondents	Response rate
REQ1*	*Ex ante*	213	184	85%
REQ2**	*Ex post*	213	113	54%

Dependent variable: Academic outcome

In the third stage in the data collection, LADOK, a student administration system used in all universities in Sweden, provided information about student academic outcome measured in terms of completed credits within the specific business program. The cut-off date was 31 October, three years after enrollment, and after the final resubmission date for students' writing their bachelor thesis that same year. This is then much less generous than the graduation rate as measured by the Swedish Higher Education Authority, which measures graduation rate three years after graduation (Swedish Higher Education Authority, 2018).

Self-efficacy predictors of academic outcome

Possible predictors of self-efficacy beliefs are the readiness scales of the REQ that explore *student self-perceived readiness*. The REQ measures student self-perceived readiness regarding Time management, Written communication, Group work, Information processing, Information Communication Technology (ICT) and Verbal communication. Students rated their readiness on a five-point Likert scale (1-do not agree at all/5-totally agree). Table 2 provides examples of items. The scale scores are calculated by adding the item scores and dividing them by the number of unweighted items (Jansen & van der Meer, 2012). Students answered the same questionnaire on the first day of the first semester and a few weeks into the second semester.

Table 2

Sample REQ questions

Readiness scales	No. Items	Sample question
Time management readiness	4	I am good at planning and organizing my studying
ICT readiness	3	I am comfortable using computers for a range of tasks
Written communication scale	4	I can independently write a short report
Information Processing readiness	4	I am confident in identifying the main ideas or main points in a text
Verbal communication readiness	2	I am confident in discussing in small groups
Group work readiness	4	Before coming to university, I worked a lot in groups

A second possible self-efficacy predictor of academic outcome is student self-reported overall perceived *preparedness*. In the initial questionnaire, students rated whether they felt that Upper secondary school had prepared them well for HE (yes/no/unsure/not applicable). The variable was then collapsed into a dichotomous dummy variable excluding the unsure/not applicable responses.

Socio-demographic predictors

The initial questionnaire also included demographic questions such as age, gender, Upper secondary school specialization, language background (native Swedish speaker/non-native), parents' educational background and time spent commuting, as previous research has shown that these factors affect academic outcome (e.g., Krause et al. 2005; Trowler & Trowler 2010; Yorke 2004).

Regarding *language background*, students reported on the mother tongue of both parents. Students with at least one parent whose native language was Swedish were classified as native speakers, whereas students with two parents whose native languages were other than Swedish were classified as non-native speakers.

Social background was measured as educational level of parents. Previous studies have used educational background of parents as a proxy for social background (Schmidt, 2012). Students indicated the highest degree their mother and their father had obtained (compulsory, upper secondary, tertiary). This variable was then collapsed into a dummy variable (0=upper secondary diploma or less; 1=university degree).

Because a large number of students in the cohort *commute* to university, students indicated the approximate time (hours) they spent commuting to class.

Academic predictors

Academic predictors in this study were: Upper secondary school grade point average (GPA) and Swedish scholastic aptitude test scores (SweSAT). Normally, universities admit two thirds of students based on their GPA and one third based on their SweSAT scores.

Grade point average (GPA) is one of the strongest predictors of academic outcome (e.g., Campbell et al., 1996; Rosander & Bäckström, 2014). GPA was the admission entry points registered in the university student administration system; it is an average of the Upper secondary school grades.

Previous research has also found that SAT scores have predictive value, although the research is inconclusive (Kuncel, Credé, & Thomas, 2007; Lyrén, Rolfsman, Wedman, Wickström, & Wickström, 2014). The Swedish scholastic aptitude (SweSAT) scores registered in the university admission system were collected. Not all students have SweSAT scores as this test is optional.

Procedure

Students answered the two questionnaires (REQ1 & REQ2) on paper in a classroom setting, after a brief introduction with information about the procedure, informed consent and confidentiality in processing and the storage of the collected data. Each test sessions lasted approximately 20 minutes.

Where identifiers were missing, responses were not used. The REQ1 sample consisted of 184 Business students, whereas the REQ2 sample was 113 students (Table 2). REQ1 took place immediately after the introduction to the first course of the first semester. REQ2 took place during a lecture in the second semester, and some students did not attend that class for various reasons. A control of the results of missing students in the second sample indicated the drop-out did not distort the outcome of the analyses.

RESULT

The aim of the present study was to explore student self-rated readiness prior to (*ex ante*) and after (*ex post*) one semester of study, as well as the link between the learning approach students identify with and academic outcome. An initial correlation analysis (see Table A1 in Appendix A) indicated a significant difference in outcomes between native and non-native students, with native students outperforming non-native students. The demographic characteristics of these two groups are also presented separately. Only 28% of students in the initial sample achieved the nominal 180 credits in three years; thus, the demographic characteristics of this specific group of students are also presented separately (Table 3).

Demographic characteristics

There was an even distribution of the sample concerning gender with about 50% female students in the three groups: all students (n=184), native speakers (n=127) and non-native speakers (n=57). However, there was a majority of female students in the nominal group (n=52). The majority of students were between 19-21 years old, and 69% were native speakers in the initial sample ('All' in table 3). Fifty percent of students commuted more than two hours every day and some as much as 3-4 hours. The average time spent commuting was about 2 hours for all groups, where the non-native speakers commuted slightly longer on average.

Table 3

Demographic characteristics of the sample (mean/std. dev)

Variables	All (*n*=184)	Native speakers (*n*=127)	Non-native speakers (*n*=57)	Nominal (*n*=52)
Share female students	51%	52%	49%	60%
Age (yrs)	21.7 (3.8)	22 (3.8)	21.2 (3.8)	21.4 (2.6)
Commute (h)	1.94 (1.3)	1.8 (1.3)	2.3 (1.3)	1.7 (1.4)
Share both parents HE	37.5%	44.9%	31.6%	42.6%
GPA[i]	16.9 (2.03)	17.1 (1.9)	16.64 (2.1)	17.7 (1.6)
SweSAT[ii]	0.92 (0.27)	0.97 (.21)	0.77 (. 35)	0.90 (0.27)
Academic outcome[iii]	153.9 (35.7)	163.7 (29.2)	140.6 (36.2)	180

i) Upper secondary school grade point average

ii) Swedish scholastic aptitude test scores, Max score 2, national mean about 0.9

iii) Total no. credits achieved in nominal time (3 years)

37.5% of all students came from homes with an academic tradition, that is, had two parents with a HE degree. Only 31.6% of non-native speakers came from homes with an academic tradition, compared to 44.9% for the native and 42.6% nominal groups. The average GPA also differed between groups, such that the nominal group had a higher average GPA (17.7) than the other groups. The mean SweSAT score for non-native speakers (0.77) was lower than the SweSAT score for native speakers (0.97), but the average score for the nominal group was actually slightly lower (0.90) than for the whole sample (0.92). Regarding academic outcomes, non-native speakers earned on average 23 credits less in three years than native speakers did.

Independent-samples T-tests compared the scores for background factors between the nominal/less than nominal and native/non-native speakers. There was a significant difference in academic outcome between students with nominal outcome (M=180.0; SD = 0.00) and those with less than nominal (M = 135.0; SD = 36.7) in this background variable *(*t (148) = 10.54; p < 0.001). There was also a significant difference in Upper secondary school GPA between the nominal (M = 17.7; SD =1.6) and less than nominal (M = 16.61; SD = 2.10) regarding this background variable (t (168) = 3.68; p < 0.05). These results seem to suggest that students with a higher GPA also do better and are more likely to complete their studies within the nominal time.

There were significant differences (t (144) = 3.52; p < 0.05) in SweSAT scores between native speakers and non-native speakers, as well as in academic outcome (t (126) = 3.31; p < 0.001) (see M and SD in Table 3). These results suggest that there is a difference in outcome depending on whether the student is a native or a non-native speaker, in that non-native students on average earned 23 credits less in three years than native students did. Non-native students also performed less well on the SweSAT test. Although the mean GPA was also lower for non-native speakers, the difference was not significant, which would seem to indicate that the grades of these students may have been inflated.

How do students appraise their readiness prior to and after one semester of studies?

Students appraised their readiness for HE studies both prior to and after one semester of study. A paired sample T-test compared the two conditions, *ex ante* and *ex post* readiness scales, as summarized in Table 4. Because the 2-tailed values for Time management, Written communication, Information processing and Verbal communication are less than .05, there is a significant difference between the means of students' self-rated readiness prior to and after the first semester on those scales.

Table 4

Readiness prior to and after the first semester, M (SD)

Table Readiness Scales	REQ1 *Ex ante* (*n*=184)	REQ2 *Ex Post* (*n*=113)	*t (df)*
Time Management	3.97 (0.62)	3.83 (0.64)	2.56 (109)*
Written Communication	3.73 (0.67)	4.14 (0.63)	-6.51 (109)***
Group Work	3.81 (0.77)	3.86 (0.69)	-.67 (107)
Information Processing	3.56 (0.63)	3.78 (0.60)	-3.91 (107)***
ICT	4.34 (0.56)	4.43 (0.64)	-1.77 (107)
Verbal Communication	3.47 (0.90)	3.66 (0.87)	-2.51 (107)*

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

REQ1 indicates that students felt most certain about ICT, Time management and Group work readiness, and less sure about Written communication, Information processing and Verbal communication. However, this perception changed after having completed their first semester (REQ2).

On the time management scale, the students' ratings declined, indicating that they felt they were not as well-prepared regarding time management compared to their initial self-rating. In contrast, the increase in ratings on written communication indicates that the students felt even better prepared after one semester, which could be attributed to the fact that teaching efforts linked to course assignments in the first semester focus on academic writing, format and referencing.

Likewise, students indicated feeling more confident regarding both Information processing and Verbal communication, where the *ex post* scores were higher than the *ex ante* scores on those scales. The differences were significant, indicating that the students felt more confident about searching for information after semester 1. Interestingly, *ex post*, students felt more confident about writing than about both time management and group work, where they scored significantly higher in the first case, and lower but not significantly so in the second case. They nevertheless felt most confident about ICT use, even more so after the first semester, but not significantly so. No significant differences existed between the *ex ante* and *ex post* appraisals on the ICT and Group work scales, and no differences due to the various background factors. There were no significant differences in the REQ scores between the different groups (all/nominal students; native/non-native speaker).

What factors predict academic outcome?

First, two standard regressions were performed between academic outcome as the dependent variable and the self-efficacy predictors, the REQ scales and student self-rated readiness as independent variables. Neither REQ scales nor readiness predicted academic outcome after three years. The result was the same for all students, native speakers and non-native speakers alike (Table 5).

Second, both academic and socio-demographic predictors were entered into a multiple regressions model. After an initial test, gender and age were removed from the model, as they had no significant impact on academic outcome. For all students, previous GPA, socio-economic background and time spent commuting were significant predictors of academic outcome. On average, students with two parents with academic degrees earned 12 credits more in nominal time (Table 5). The model explained 29% of the variance. This result is in line with

Table 5

Predictors of academic outcome for all students, native and non-native speakers

Dependent variable	Predictors	All students *(n=112)*				Native speakers (*n=94*)				Non-native speakers (*n=33*)			
		β	F	df	R2	β	F	df	R2	β	F	df	R2
	REQ1		0.99	7	0.00		0.402	7	0.04		0.62	7	0.14
	Verbal com.	-.70				-.64				-4.93			
Academic	Time mgmt	3.22				-.24				7.33			
outcome	Written com.	-5.13				-9.09				-1.49			
	Group work	-2.83				-.32				-4.45			
	Info proc.	-4.32				3.81				-10.76			
	ICT	-6.66				-4.10				-11.48			
	Preparedness	8.55				9.88				11.08			
	REQ2		0.52	6	0.04		1.01	6	0.10		1.27	6	0.06
	Verbal com. 2	-3.25				-4.57				.05			
Academic	Time mgmt 2	8.48				5.76				-.16			
outcome	Written com. 2	4.80				-6.14				-.06			
	Group work 2	0.48				7.95				-.16			
	Info proc. 2	-7.00				-1.59				.13			
	ICT 2	0.62				-2.59				.01			
	Background variables		6.47***	5	0.28		3.17*	4	0.18		0.38	4	0.19
	GPA	5.00**				5.17**				5.96			
Academic	SweSAT	14.45				-.78				30.01			
outcome	Language background	16.45*											
	Social background	14.90*				9.66				25.01			
	Commute	-5.18*				-5.79*				-4.85			

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

findings from previous research. Although language background was not significant, non-native students who has Swedish as second language, overall, earned about 16 credits less in the nominal time than native speakers did. Interestingly, SweSAT scores were not significantly related to academic outcome.

For native speakers, the result was similar to that of the whole sample. The three significant predictors – previous GPA, socio-economic background and time spent commuting – were strong predictors of academic outcome, explaining 23% of the variance. However, for non-native speakers there were no significant correlations for any of the predictors and outcome. GPA did not predict academic outcome. Likewise, neither time spent commuting nor parents' social background predicted academic outcome for this group.

As previous research indicates, students who drop-out tend to do so during the first year. This was indicated by the drop from 200 students enrolled the first semester to 111 students enrolled in the third semester. Only 26% of students enrolled took 180 credits within the nominal three years for a bachelor's degree. The overall share of non-native students declined slightly during the 3-year period, but the real effect was evident when analyzing to what extent students achieved the nominal 180 credits in three years. Here the number of non-native speaking students decreased from 25 enrolled Year 3 to only 17% (Table 6).

There were no significant differences between native and non-native students regarding time spent commuting, number of female students or age. However, there were significant differences between the groups regarding SweSAT scores, GPA and academic outcome. In the nominal group, the number of female students increased, as did the number of students with two parents with a HE degree (Table 3).

Table 6

Distribution native/non-native students through the program

	Year1	Year2	Year3*	Nominal***
Share native speakers	63%	69%	75%	83%
Share non-native speakers	37%	31%	25%	17%
No. native speakers	127	77	65	43
No. non-native speakers	57	34	22	9
Total no. of students	184**	111	87	52

* Students admitted to final semester (Bachelor's thesis)
** 16 missing (200 students enrolled)
*** Nominal = students who complete 180 credits in three yea

DISCUSSION AND PEDAGOGICAL IMPLICATIONS

One aim of this longitudinal pedagogical development project was to explore student self-rated readiness prior to and after one semester of study and its possible link to academic outcome. If successful, administration of the questionnaire among freshmen students and subsequent results would allow teachers to take appropriate preemptive measures in time to improve academic outcome. Contrary to previous research (Jansen & Suhre, 2011; Jansen, André, & Suhre, 2011), the present findings showed that student self-rated readiness and preparedness, as measured by the REQ, did not predict academic outcome.

Given that students often find their first encounter with HE to be shocking and chaotic (Edvardsson-Stiwne, 2005), it is interesting to see how students rated their readiness after having completed their first semester. Because motivation and self-efficacy beliefs are important to academic outcome, it was expected that the more ready the students felt (i.e., the higher their score on the REQ), the better they would perform. It was also expected that scores would decrease when students realized they were not as ready as they had thought. However, instead of feeling less sure of themselves, the scores increased on all scales but one (Time management), and increased significantly for Written communication, Verbal communication and Information processing. There was also no correlation between REQ results and academic outcome.

One possible explanation for this is that the instrument does not truly measure how prepared students actually are, but how confident they feel in themselves. One problem with the REQ used in the present study, and with other self-evaluation instruments, is that students may have problems interpreting the real meaning of the questions (Kahu, 2013) and, therefore, have problems assessing their own ability and skills (Lizzo & Wilson, 2008). In addition, students' conception of what it means to be able to write an essay may not accord with what teachers actually require, as indicated by Hounsell (as reported in Marton & Booth, 2000). This may also be true regarding students' very high rating on ICT use. Responses indicate that students feel confident about efficiently using computers. However, that conception may have more to do with using the computer for gaming, social networking or as a multimedia center than with using it as an academic tool for writing reports or analytics. Teachers in the program reported that students, for example, generally lack sufficient skills to format a paper in Word or use Excel effectively.

Regarding demographic characteristics and academic outcome, the result of this study confirms previous research. For all students, previous GPA, socio-economic background and time spent commuting were significant predictors of academic outcome. On average, students with two parents with academic degrees earned 12 credits more in nominal time. This result is similar with findings from previous research which indicates that student with lower socio-economic status fare less well in HE (e.g., Trowler, 2010). Although gender was not a significant predictor, the number of female students in the nominal groups was about 60%, which is equivalent to levels reported by the Swedish Higher Education Authority (2018).

Non-native speakers, overall, earned less credits in the nominal time than native speakers did. This is also found in the international research, which indicates that students of certain ethnic backgrounds perform less well in HE than do dominant groups (Krause et al., 2005; Trowler, 2010; Yorke, 2001). Interestingly, for the group non-native speakers, there were no significant correlations for any of the predictors. It seems as if the fact of having a language background other than Swedish outweighs all other predictors, although T-tests indicated there are significant differences in mean SweSAT scores, GPA and academic outcome. The share of non-native

speakers enrolled declined only slightly during the three years; however, the share almost halved in the nominal group, that is, the group of students who graduated in nominal three years. One explanation for this drop is that, all other things equal, non-native speakers take 16.45 less credits than do native students (see table 5). This means that fewer non-native students were eligible to write their bachelor thesis in their final semester, and even if they did, they did not have enough credits to complete their degree in nominal time.

Previous GPA (previous performance) is normally a strong predictor of academic outcome, but not so for the non-native speakers in this cohort. One conclusion is that the grades for this group from Upper secondary school might be inflated. In a study on students in compulsory school, Klapp (2015) found that girls and students from homes with no academic tradition were given higher grades based on factors other than achievement. One problem here might be that non-native speakers may take Swedish as a second language classes but are admitted to HE on the same terms as native speaking students. Maybe this is necessary in order to achieve widening participation. However, since the REQ results in this study suggest that students feel equally prepared regardless of both background and outcome, it seems to be misguided benevolence from the school system to encourage students to apply for education which they are not fully equipped to manage and without providing them with necessary skills training.

The most pertinent conclusion of the present study is that students seemed to be confident in their own skills. It is important for teachers to acknowledge this, because this belief indicates a gap between self-perceived readiness and actual readiness and may be one of the reasons why about 40-50% of students leave the Business program during the first year. One implication is the importance for teachers to *show* students what is expected of them, for instance by providing clear text examples, and not only to *tell* them. Such a practice might enable students to see what to strive for in their work. This level of clarity may be even more important to non-native speakers, who earned fewer credits than their native counterparts did. This increased degree of explicitness in academic expectations may also benefit native students whose parents have no HE degree, as this group is also at a disadvantage, at least with regard to completing the studies in nominal time.

In order to be successful in HE, the student must be a good reader and writer. Extra work is needed here. In Sweden many universities lack courses in academic writing for students. One possible intervention could be to purposefully work with literacy development throughout the program, which would benefit not only non-native speakers, but all students. This type of work is now increasingly being undertaken in primary and secondary education, but the present results indicate that additional measures may be needed also in tertiary education.

However, the language skills needed to succeed in HE entail not only actual linguistic skills, but also the ability to decode "the language of education," that is, to know what is important and how to behave to succeed. In this regard, a great deal of work is needed to enable students to better understand the social code and perhaps even how universities organize and prioritize their teaching.

Limitations of the Study

This study is limited in scope as it is a single site study on one student cohort; thus, one must be careful about generalizing the present results. It is only possible to point to significant differences in this specific study sample. More research is needed to better understand the different groups identified in the present study, and to be able to offer effective support measures at the group level. For example, how can we better accommodate non-native speakers? As Kahu (2013)

pointed out, student engagement and outcome are deeply embedded in a social context, but how do we create an environment for everyone? Should we perhaps be considering different forms of graduation? To address these questions, in-depth studies into specific student populations are needed to discover what characterizes specific student cohorts and the groups within them. Who are they and what drives them? How do they form relationships that affect their learning, with whom and why? What implications do these relations have for students' views on what it means to be a student and to study a specific subject area? How do we create an academic environment where all students can reach their potential?

ACKNOWLEDGMENTS

I would like to thank the editor of this journal and the anonymous reviewers whose constructive feedback contributed to the completion of this paper. I would also like to thank Dr. Katarina Mårtensson and Dr. Torgny Roxå, Lund University, and Dr. Ann Ooms, Kingston University and St George's, University of London who have all read drafts of this paper at various stages. Finally, statistician Pierre Carbonnier, Kristianstad University, has kept a vigilant eye over the method and results chapter.

REFERENCES

Ambrose, S. A., Lovett, M. C., Norman, M. K., & Mayer, R. E. (2010). *How Learning Works: Seven Research-Based Principles for Smart Teaching.* San Francisco, CA: Jossey Bass.

Barrie, S. (2004). A research-based apporoach to generic graduate attributes policy. *Higher Education Research & Development, 23*(3), 261-275. doi:10.1080/07294360.2012.642842

Biggs, J., & Tang, C. (2011). *Teaching for Quality Learning at University.* McGraw Hill.

Cambell, A. R., & Dickson, C. J. (1996). Predicting Student Success: a 10-year Review Using Intergrative Review and Meta-Analysis. *Journal of Professional Nursing, 12*(1), 47-59. doi:10.1016/s8755-7223(96)80074-3

Conley, D. T. (2011). *Redefining College Readiness, Volume 5.* Eugene, OR: Educational Policy Improvement Center.

Edvardsson Stiwne, E. (2005). *Studentens första år: En jämförelse mellan 4 årskullar teknologstudenter. Rapport,* 1. Linköpings Universitet.

Freudenberg, B., Brimble, M., & Cameron, C. (2010). Where there is WIL there is a way. *Higher Education Research & Development, 29*(5), 575-588. doi: 10.1080/07294360.2010.502291

Jansen, E., & Suhre, C. (2011). Preparedness, First-Year Experiences and Outcomes. A Comparison Between Students in Domestic and International Degree Programmes in a Dutch University. i K. B.-I. Krause, *Research and Development in Higher Education: Reshaping Higher Education,* 34 (pp. 174-187). Higher Education Research and Development Society of Australasia.

Jansen, E., & van der Meer, J. (2007). First-year students' expectations and perceptions of readiness before they start university. *Enhancing Higher Education, Theory and Scholarship* (p. 275). Higher Education Research and Development Society of Australasia.

Jansen, E., & van der Meer, J. (2011). Ready for university? A cross-national study of students' perceived preparedness for university. *The Australian Educational Researcher, 39*(1), 1-16. doi:10.1007/s13384-011-0044-6

Kahu, E. R. (2013). Framing student engagement in Higher Education. *Studies in Higher Education, 38*(5), 758-773. doi: 10.1080/03075079.2011.598505

Kember, D. (2004). Interpreting student workload and the factors which shape students' perceptions of their workload. *Studies in Higher Education, 29*(2), 165-184. doi: 10.1080/0307507042000190778

Krause, K.-L., Hartley, R., James, R., & McInnis, C. (2005). *The First Year Experience in Australian Universities: Findings from a Decade of National Studies.* Centre for the Study of Higher Education University of Melbourne.

Kuh, G. D. (2009). What student affairs professionals need to know about student engagement. *Journal of College Student Development (50)*, 683-706. doi: 10.1353/csd.0.0099

Kuncel, N. R., Credé, M., & Thomas, L. L. (2007). A Meta-Analysis of the Predictive Validity of the Graduate Management Admission Test (GMAT) and Undergraduate Grade Point Average (UGPA) for Graduate Student Academic Performance. *Academy of Management Learning & Education, 6*(1), 51-68. doi: 10.5465/amle.2007.24401702

Le, H., Casillas, A., Robbins, S. B., & Langley, R. (2005). Motivational and skills, social and self-management predictors of college outcomes: Constructing the student readiness inventory. *Educational and Psychological Measurement, 65*(3), 482-508. doi: 10.1177/0013164404272493

Lizzo, A., & Wilson, K. (2008). First-year students' perception of capability. *Studies in Higher Education, 29*(1), 109-128. doi: 10.1080/1234567032000164903

Lyrén, P.-E., Rolfsman, E., Wedman, J., Wickström, C., & Wickström, M. (2014). *Det nya högskoleprovet –samband mellan provresultat och prestation i högskolan.* Umeå Universitet, Institutionen för tillämpand utbildningsvetenskap.

Marton, F., & Booth, S. (2000). *Om lärande.* Studentlitteratur.

McKenzie, K., & Schweizer, R. (2001). Who Succeeds at University? Factors predicting academic performance in first year Australian university students. *Higher Education Research & Development, 20*(1), 21-33. doi: 10.1080/07924360120043621

Nelson, K., Kift, S., & Clarke, J. (2008). Expectations and realities for first year students at an Australian university. *In 11th Pacific Rim Conference on the First Year in Higher Education : First Year in Higher Education Conference 2008 : an apple for the learner : celebrating the first year experience* (pp. 1-8). Queensland University of Technology.

Osborn, J. W., & Jones, B. D. (2011). Identification with academics and motivation to achieve in school: How the structure of the self influences academic outcomes. *Educational Psychology Review, 23*(1), 131-158. doi:10.1007/s10648-011-9151-1

Ramsden, P. (2003). *Learning to Teach in Higher Education.* RoutlegeFalmer.

Rosander, P., & Bäckström, M. (2014). Personality traits measures at baseline can predict academic performance in upper secondary school three years late. *Scandinavian Journal of Psychology, 55*(6), 611-618. doi:10.1111/sjop.12165

Simpson, O. (2006). Predicting student success in open and distance learning. *The journal of Open, Distance and E-learning, 21*(2), 125-138. doi: 10.1080/02680510600713110

Swedish Higher Education Authority. (2018). *Universitet och högskolor: årsrapport 2018:5.* Stockholm: Universitetskanslerämbetet.

Swedish National Agency for Higher Education. (2009). *Förkunskaper och krav i högre utbildning: Rapport 2009:16 R.* Stockholm: Höskoleverket.

Thomas, L. (2012). *What works? Student retention & success. Building student engagement and belonging at a time of change: final report from the What works? Student retention and success programme.* Retrieved from http://actiononaccess.org/resources/reports

Trowler, V. (2010). *Student engagement literature review.* The Higher Education Academy.

van der Meer, J., Jansen, E., & Toerenbeek, M. (2010). 'It's almost a mindset that teachers need to change': first-year students' need to be inducted into time management. *Studies in higher education, 35*(7), 777-791. doi: 10.1080/03075070903383211

Vedel, A., Thomsen, D., & Larsen, L. (2015). Personality, academic major and performance: Revealing complex patterns. *Personality and Individual Differences,* 85, 69-76. doi: 10.1016/j.paid.2015.04.030

Yorke, M. (2004). Retention, persistence and success in on-campus higher education, and their enhancement in open and distance learning. *Open Learning,* 19, 19-32. doi:10.1080/0268051042000177827

Yorke, M., & Longden, B. (2008). *The First Year Experience of Higher Education in the UK.* The Higher Education Academy.

APPENDIX A

Correlation Matrix

Table A1

Correlation matrix – all students

	Academic outcome	SweSAT	GPA	Age	Gender	Commute	Social backgrd.
Academic outcome	1						
SweSAT	0.15						
GPA	.18*	-.30**					
Age	0.05	.27**	-0.11				
Gender	.19*	-.19*	.25**	0.08			
Commute	-.22*	-0.11	0.04	-0.01	0.06		
Social Backgrd.	0.15	0.06	-0.01	-.17*	-.23**	0.03	
Language Backgrd.	.33**	.34**	0.10	0.09	0.03	-.17*	0.12

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

ACCOUNTING INFORMATION SYSTEMS (AIS) LAB SOFTWARE: A PRACTICAL DECISION-MAKING APPROACH

Todd Tregidga, MBA
Assistant Professor
Montana Technological University
1300 West Park Street
Butte, MT 59701
ttregidga@mtech.,edu

ABSTRACT

An Accounting Information Systems (AIS) course is a necessary component of a successful Accounting curriculum and can benefit from a lab component that provides its students with an opportunity to be hands-on with actual AIS software. QuickBooks and SAP are both market leading examples of AIS software that can support an AIS course well, but each serve significantly different markets. The purpose of this action research is to provide a practical decision-making approach to determine which of the two will serve the AIS course best, to include consideration of integrating both into one course.

INTRODUCTION

The American Institute of Certified Public Accountants (AICPA) has identified a set of six core competencies needed by students entering the accounting profession. Two of those competencies, System and Process Management and Technology and Tools, are directly related to many of the major topics covered in an Accounting Information System (AIS) course. Those two competencies are described to include business processes, related frameworks and controls and relevant supporting technologies (AICPA, 2019). An AIS course typically includes the study of Internal Controls, Systems, Frameworks, and Transaction Processing (Neely, Forsgren, Premuroso, Vician, &White, 2015). From that perspective, logically, an AIS course should be included in an Accounting Curriculum to prepare Accountants for their careers.

Much of what is included in an AIS curriculum can be taught in lecture format. However, providing an opportunity for the students to be in a lab hands-on with an actual AIS software application using it to actually practice business transactions and experience how those transactions eventually are summarized to develop Financial Reports can bring depth of knowledge to the student. The development of all depths of knowledge, including skill development and ability to apply, in the study of Information Systems, in general, can benefit from hands-on lab work (Topi et al., 2010).

If software should be used in an AIS lab, which specific software should be used? There are at least dozens if not hundreds of AIS software packages on the market currently and arguably, any one of them can provide the student the opportunity to practice business transactions that help to reinforce the AIS concepts taught in lecture. The following is a real example of a practical decision-making approach to an AIS lab software decision.

BACKGROUND

A small engineering and technical school in the Northwest (Tech) offers a Bachelor of Science degree in Business and Information Technology. Students pursuing this degree will choose one of six emphasis areas to include Accounting. The Accounting Option curriculum requires the completion of a course entitled Accounting Information Systems (AIS). Currently it is a three-credit course to be taken during the junior year after taking six credits of Principles of Accounting. Two credits are taught as a traditional lecture focusing on AIS concepts and architecture with heavy focus on business process and corresponding internal controls. The additional credit is taught in a computer lab for two hours each week giving the students opportunity to be hands-on practicing transactions in an AIS. Currently, QuickBooks is the AIS used in the lab. Until recently, QuickBooks was the software choice since it is a market leading AIS product, has the capability to demonstrate most common business transactions in support of the concepts learned in the lecture portion of the course, and many local employers encouraged the development of a QuickBooks skill set. Additionally, since the software is loaded locally on each lab PC, it requires very little Information Technology (IT) support.

However, events going as far back as the late 1990s have caused Tech's Business and Information Technology Department (BIT) to reevaluate its curriculum. The emergence of Enterprise Resource Planning (ERP) has changed the way most large and medium sized companies do business and SAP has come out as the market leader globally in its ERP offerings. ERP can

simply be described as one software solution that can integrate and support most if not all business activities regardless of the size and complexity of the organization. Very specifically, the largest employer in Tech's immediate market is the headquarters of the primary electricity and natural gas utility serving Tech's home State. In 2000 it replaced its legacy AIS with SAP. This was the beginning of demand for SAP skills and it also developed SAP talent in our immediate market. The later result has actually led to other SAP adoptions in Tech's immediate market and over time put two SAP experienced professionals on the BIT faculty. There are now four major employers in Tech's immediate area using SAP as its AIS solution and a few BIT Advisory Board members represent those employers.

For those reasons, Tech had to start looking seriously at bringing SAP skill development into its curriculum. With some research, the BIT learned of the SAP University Alliance. This is an affiliate of SAP that is specifically tasked with assisting Colleges and Universities to develop SAP skills. Member schools get access to hosted SAP software with all needed IT support and access to process specific curriculum designed to support a wide variety of higher education courses. After a year of analyzing the pros and cons of integrating SAP into the BIT curriculum, BIT joined the SAP University alliance in early 2017. The goal for BIT faculty was to begin the process of integrating SAP into its curriculum where it made sense and could bring value to the student. Since SAP is an AIS, it was obvious it should be integrated into the AIS course.

ISSUE

While the SAP integration into AIS seemed very logical, the curriculum hadn't been reviewed to determine its value and QuickBooks was serving the students well up to this point. So the primary research questions that needed to be answered prior to integration were:

- Will the SAP AIS curriculum bring value to BIT's existing AIS course?
- Should SAP replace QuickBooks or be integrated into the curriculum in addition to QuickBooks. A discussion on marketability of the respective skill sets needed to be part of answering this question.
- If integration made sense, could both AIS solutions be integrated from a practical perspective considering the time constraints of a one semester course?

CURRICULUM OPTIONS

The SAP University Alliance curriculum that was identified was the (Daigle, Noman, & Quarles, 2016) Classic Rockers Case developed by Sam Houston State. It had been in use at Sam Houston and was apparently working very well supporting its AIS course. The SAP University Alliance provides other curricula that focuses on AIS process such as the Global Bike Case, possibly its most used Case, but the Classic Rockers Case was the only curriculum found that had an Accounting focus with significant emphasis on internal controls in its documentation. Therefore, it was determined to be the best fit for the course objectives.

Classic Rockers is a fictitious company that manufactures rocking chairs. The case provides opportunity to practice all the corresponding transaction cycles from procurement of raw materials to sales of the final product. The case provides five well described student exercises

designed to practice Master Data setup and transactions in Materials Management, Production Planning, Sales and Distribution, and General Ledger, which are all specific modules of SAP. In addition to the step by step exercise documentation, the full curriculum also provides both student and instructor handbooks that supplement the exercises along with a trouble shooting guide designed specifically for the instructors use in the lab to address real time issues.

The QuickBooks curriculum that had been used to this point is a subset of hands-on exercises pulled from (Owen, 2015) Using QuickBooks Accountant for accounting text book series (2012 – 2015). This text book provides both hands-on exercises and detailed description on how to execute the corresponding transactions. This text supports all basic business transactions. While the text provides opportunity to practice transactions in a variety of different business types, the past exercises focused on a fictitious food catering business with some demonstration exercises using a fictitious landscaping business. The subset of exercises utilized focused on Reporting, Company Setup, Procurement, Sales and General Ledger.

Since two software/curriculum combinations had been identified to potentially support the AIS course, a decision process needed to be put in place to be in a position to answer the three research questions posed above.

DECISION PROCESS – KEY OBJECTIVES AND ASSUMPTIONS

To fully vet the curriculum options and come to a supportable decision, the decision was approached from two perspectives. First, the two curriculums needed to be individually tested in the context of answering the three research questions above. Lastly, an evaluation of the marketability of the skills gained in the lab relative to each option would need to be accomplished as well.

Testing both sets of curricula needed to be done by focusing on specific objectives while being constrained by defined assumptions to manage the scope. The primary objective was that the lab based AIS curriculum had to support key defined Student Learning Objectives (SLO), which are as follows:

- The student should be able to possess an understanding of the fundamental elements of an accounting information system and of the database concepts underlying such systems.
- The student should be able to identify and document business processes and the impacts such processes have on accounting information systems.
- The student should be able to identify and document the risks inherent in business processes, the controls employed to mitigate such risks, and the impacts such risks and controls have on accounting information systems.

To manage the scope of the curriculum testing, the following assumptions were made:

- Some type of hands-on experience for the students would add value to the AIS course and help the student more fully understand AIS concepts. Therefore, no discussion was contemplated of eliminating the lab component of the course.
- The curriculum review would focus exclusively on the combination of software and curriculum. The software would not be reviewed beyond what was needed to support the corresponding curriculum.

- The two software options considered, SAP and QuickBooks, are market leading AIS software packages, are very representative of all AIS software on the market, and are very recognizable brands in business. A thorough review of other software offerings was not practical in this context.

TESTING METHODOLOGY

The approach taken to fully evaluate the curriculum options was for the AIS instructor to independently complete the hands-on exercises that would be assigned to the students in the lab. At the completion of each exercise an evaluation would be completed and documented to determine how well the exercise met the three key SLO identified above. This would be done for both sets of curricula. Since the SAP curriculum was new to the AIS instructor, a BIT student, who had some previous exposure to SAP and was a previous student in the AIS course when QuickBooks was the only software offered, was hired to help in the evaluation. Each week, for a total of six weeks, both the AIS instructor and the BIT student would practice an SAP exercise independently, complete a formal evaluation, and meet at the end of the week to discuss the experience. The weekly discussion would focus on practical application of the exercise, independent evaluation of the Student Learning Objectives, and any perceived issues related to course integration. The QuickBooks curriculum was practiced and evaluated with the same process, but only by the AIS instructor due to the instructor's previous experience with QuickBooks in the AIS course and the inconsistent availability of the student. While the student did not engage in the same level of testing of QuickBooks, all testing outcomes were discussed thoroughly between the instructor and the student allowing the student opportunity to bring value to all aspects of the testing process. Since the testing was done with an intense focus on the curriculums ability to meet specific objectives, it did provide the needed knowledge to answer the first two research questions pending the skill marketability review.

TESTING OUTCOMES

The testing outcomes were broken down by SLO, specifically, how well each curriculum option met the Objective.

The first SLO focused on the demonstration of AIS fundamentals and database concepts. From an AIS fundamentals perspective, both curriculums clearly demonstrated data capture, the necessary processing and storage, and value adding output for the transaction cycles tested. While the fundamentals were present for both options, QuickBooks has the clear advantage in basic navigation to the various components that make up an AIS. Its point and click nature and intuitive interface made it much easier to move fluidly through the different steps needed to complete a transaction.

As for database concepts, SAP being the far more complex AIS, makes it difficult to fully appreciate all of the master data needed to support full functionality as the curriculum comes to the student pre-configured with much of the setup already complete. The QuickBooks curriculum requires the student to set everything up from the beginning to include all master data elements. However, SAP does do a good job in demonstrating data relationships with the use of its intricate

master data hierarchies as well as the audit reports detailing data flow and abilities to drill for detail from master data to transaction data and vice versa. QuickBooks also demonstrates data relationships as its home screen is organized by type of master data that will display corresponding transaction data with one click of the mouse. QuickBooks gives significant data drilling capabilities, which does emphasize the relationships configured into the database.

The second SLO focuses on business processes in general with detailed focus on how an AIS supports those processes. Both curriculums clearly demonstrate how basic transactions in the procurement, sales, and general ledger cycles are supported by an AIS, but the SAP curriculum also demonstrates the production cycle where the QuickBooks curriculum does not. This is an area where SAP can really separate itself from QuickBooks as it is a far more robust AIS that can handle a much broader range of business models than QuickBooks. However, since the AIS course is designed for entry level learning, SAP's complexities cannot be fully exploited in the AIS course context. However, the lecture portion of the class does review the production cycle in some level of detail, therefore, the SAP curriculum, in that area, does provide benefit to the course and the student that the QuickBooks curriculum does not.

While SAP definitely has the advantage in scope of transactions supported, QuickBooks continues to shine in its intuitive nature especially as it relates to business processes. Its home screen gives an actual flowchart of the main transaction cycles supported and each step in the flowchart is a clickable link that takes the student directly to that step in the transaction. From an educational perspective, this may be the best tool for teaching process within the QuickBooks curriculum.

The last SLO focuses on the business risks inherent to the business processes and the corresponding internal controls that can be put in place to manage those risks. Both curriculums demonstrate controls to some degree, but in general, internal controls are not the strength of either curriculum. This is especially true for general controls such as system security, which supports one of the most important types of controls in segregation of duties. A system cannot separate duties without user security. The SAP curriculum does at least require a log in id and password since it is physically hosted offsite. Arguably, this is the first step in providing general internal controls. SAP can provide very robust role/user specific controls to govern a wide variety of transactions, but again, most of this functionality is well beyond the scope of this course. The QuickBooks curriculum does not even require a log in, therefore, it is very difficult to demonstrate general controls in the absence of that key component. While SAP does a better job demonstrating general internal controls, both sets of curricula is designed so that one student can practice all transactions in the curriculum, which really would not be the case in an actual business environment. However, this issue can be managed with additional effort and focus from the instructor ensuring the students understand where the security would be present in a live business environment.

While both curriculums are relatively weak in the area of general internal controls, both curriculums provide opportunity to demonstrate application controls focused on data integrity. Input and Processing controls can be demonstrated in both curriculums, but since SAP comes pre-configured it may not be as obvious to the student how they are managed as some of the input controls in the QuickBooks curriculum must be established by the students at the time of setup or on the fly as needed. That being said, the ancillary material provided for the SAP curriculum does a thorough job of bringing to light all of the pertinent internal controls utilized in the curriculum, where the QuickBooks material is far less supportive in this area.

In general, for the AIS course to be effective in this area, it will be up to the instructor to focus the students on the appropriate internal controls embedded in the hands-on curriculum to bring the appropriate emphasis to this SLO.

Once the curriculum testing was complete it was now appropriate to do some evaluation of the perceived value of the skillset gained from each of the curriculums being tested.

SKILL MARKETABILITY

As referenced above, there really is no disputing that QuickBooks and SAP are both market leaders and no resource referenced indicated anything to the contrary. However, each are serving different markets as SAP is focused on very large international corporations. Its website indicates SAP customers represent 87% of the Forbes Global 2000 companies. QuickBooks is a small business AIS solution. One article referenced (Clements, 2015) put its market share in the range of 80% in the United States. Intuit is the company that produces QuickBooks. Its website touts a customer base of 4.8 million and forecasts QuickBooks online users to be over 3.2 million in 2018. Therefore, it should be obvious that skills gained in the study or use of either curriculum would be very marketable. It would just depend on where the student gains employment as to which would be better if only one curriculum had to be chosen.

According to Tech's Career Services Department, since 2014 those graduated from Tech with a BS degree in Business and Information Technology and reported their employment status back to the school, 70% went to work in State, which makes the home State the primary market for Tech Business students. According to the U.S. Small Business Administration Office of Advocacy's website, in 2016 97.4% of all businesses in Tech's home State were defined as small and 67.4% of all employed in this State work for a small business. Therefore, one could argue that given those statistics, QuickBooks would be the most marketable skill set for Tech Business graduates. However, as mentioned earlier, some of the largest employers in Tech's immediate market either are running SAP or are in the process of implementing SAP and two of these employers have a statewide reach. Therefore, it might be best that the students get some exposure to both curriculums to cover all bases.

DECISION

After a thorough testing of the curriculum in the context of the SLO and an evaluation of the marketability of the skill sets gained from the curriculums, the first two research questions were answered. The SAP curriculum provided by the SAP University Alliance proved to be very good and would support the three key Student Learning Objectives. Additionally, it was clear that any skills gained from the use of the SAP curriculum would be considered very marketable due to SAP's dominance in the ERP market.

While the answer to the first question was relatively straight forward, the answer to the second was a little harder to determine, especially once it was determined that SAP could definitely bring value to the AIS course. When both aspects of this evaluation were considered, it became obvious that for an entry level AIS course QuickBooks was the best curriculum to support an AIS course. This was primarily due to the very intuitive and point and click nature of QuickBooks

compared to the far less intuitive nature of SAP and its menu driven navigation. Additionally, the primary market of Tech Business students is small business based. So if one curriculum had to be chosen, QuickBooks would be it.

However, one of the viable options was to integrate both curriculums into the course and ultimately that was the decision made. It would be irresponsible to overlook the strength of SAP in the overall business marketplace and the growing demand for the SAP skillset in the immediate market. Second, there are hundreds of AIS solutions in the entire business market and it is likely that many of the AIS students will be using something other than those two solutions even though they are both market leaders. Having exposure to two AIS software will help to reinforce general AIS concepts and architecture independent of the software utilized. This would better provide the students with confidence that they can apply what was learned in the course to any AIS solution they would encounter in their career.

PROPOSED COURSE STRUCTURE

After the SAP curriculum testing, it was realized the curriculum could be managed over the course of seven out of thirteen labs and the QuickBooks curriculum could be condensed and the scope narrowed to fit into the remaining six labs. Coming to this conclusion answered the last of the research questions regarding the practicality of integrating both AIS solutions into one semester. The Classic Rockers curriculum is five chapters in length. And after testing each, it was obvious that four of the five chapters could be managed during one lab each. Even though the Sales and Distribution chapter had many more exercises than the other four, it could be easily managed over two labs. The seventh SAP lab would be used to reinforce process from previous labs and introduce some SAP reporting capabilities outside of the Classic Rockers curriculum. Research (Beasley, Bradford, & Hingorani, 2015) did identify that the less intuitive SAP curriculum could be benefited by an earlier practice of the more intuitive QuickBooks curriculum. Therefore, it made sense to structure the labs in that order. The following table (Table I) describes what was determined to be the best AIS course schedule based on all that was learned throughout this research:

Table I: Proposed AIS Course Schedule

Week	Lecture Topic	Lab Topic
1	AIS Overview	QB Intro - Navigation & Reporting
2	Overview of Transaction Processing	QB Company Setup
3	System Documentation	QB Expenditure Cycle
4	Relational Databases	QB Revenue Cycle
5	Computer Fraud	QB G/L & Managerial Accounting
6	Internal Controls	QB Final Project
7	Internal Controls	SAP – Overview & Master Data Setup
8	Expenditure Cycle	SAP Expenditure Cycle
9	Production Cycle	SAP Production Cycle
10	Revenue Cycle	SAP Revenue Cycle
11	G/L & Reporting Cycle	SAP Revenue Cycle

12	HR/Payroll Cycle	SAP G/L Cycle
13	Final Exam Review	SAP Review & Reporting

EVIDENCE OF EFFECTIVENESS

Upon completion of the curriculum, it was implemented over the course of two Spring Semesters in two consecutive academic years. The roll out went quite well. The lecture and lab schedules supported each other very well providing clear examples of how AIS architecture learned in lecture was applied hands-on in the lab. The later part of the semester focusing on the specific transaction cycles proved to be quite interdependent as it was valuable to discuss each cycle conceptually and then be able to practice the specific cycle in the lab through the use of the SAP Classic Rockers Curriculum. Even though QuickBooks was used in the lab to practice transaction cycles prior to covering the specific cycles in lecture, it added value to the lecture by supporting the early concepts of basic data capture, processing, storage, and output. These basic concepts could be introduced in lecture and demonstrated through hands-on use of QuickBooks in the lab.

While it was important for the curriculum to flow well and bring value from an instructor's perspective, it was even more important for the student to see the value created by the lab component, the hands-on experience with specific AIS software, and the integration of both SAP and QuickBooks. Therefore, an exit survey was developed to formally assess the student's opinion of the lab component of the course. The exit survey included seven specific questions and the responses to those questions were gathered using a standard Likert Response Scale. The scale was 1 to 5 with 1 being Strongly Disagree and 5 being Strongly Agree. A total of 33 students over the two semesters completed the course and the survey response rate was 90%. The survey questions and results are included in the Appendix I.

The most important finding from the survey is the students definitely find value in the lab component of the course as designed and implemented and customer satisfaction is always important for any service offering. It is also clear they find value in having exposure to both QuickBooks and SAP individually and find value in the integration of both versus being exposed to just one or the other. While, they find value in both, it is obvious that there is a bias toward QuickBooks as the Mean results for the respective questions lean slightly toward this bias. This is not a surprise as it was determined in the testing that if one software were to be used it would be QuickBooks primarily due to its ease of use and intuitive front end.

The survey results do validate the decisions made on the structure of the course curriculum, specifically the structure of the lab component. However, further validation could be done over time through an evaluation of performance on specific lecture assessment tools. Will this lab structure improve a student's understanding of architecture, specifically transaction-based business processes independent of a specific AIS software? This level of validation was not done as the specific assessment tools were not in place prior to the integration, which would have been needed to support a meaningful before and after evaluation.

CONCLUSION

This action research project did prove to be valuable to the instructor as it did answer the research questions identified and validated the decision-making approach employed to make this AIS software decision. By focusing on meeting specific Student Learning Objectives and the ability to deliver Skill Marketability, the lab curriculum was designed successfully supported by specific and formal student feedback. While, arguably, SAP and QuickBooks are very good examples of AIS software and proved to be successful in this AIS lab, the decision-making approach used could be applied to other AIS software options leading to a completely different lab curriculum, but still lead to a very successful student outcome. From a practical perspective, it could prove over time to be difficult to manage multiple software offerings in the AIS lab as technology is always changing, but it is imperative that instructors continuously strive to improve curriculum when possible to enhance the students learning experience and maximize the value delivered by the curriculum.

REFERENCES

American Institute of Certified Public Accountants (2019). *AICPA Pre-Certification Core Competency Framework.* Retrieved from https://www.aicpa.org/interestareas/accountingeducation/resources/corecompetency.html

Beasely, B., Bradford, J., & Hingorani, K. (2015). Enhancing student learning of ERP configuration through a QuickBooks tutorial. *Issues in Information Systems*, *16*(1), 132-141.

Clements, M. (2015). QuickBooks enjoys 80% market share with 29 million small businesses but keeps on growing. *The Market Strategist*. Retrieved from http://www.chicagonow.com/marketing-strategist/2015/04/quickbooks-enjoys-80-market-share-with-29-million-small-businesses-but-keeps-on-growing/

Daigle, R., Noman, F., & Quarles, R. (2016). *Classic rockers case: processing transactions through the logistics and support processes of SAP with an emphasis on internal control*. Huntsville, TX: Sam Houston State University.

Neely, P., Forsgren, N., Premuroso, R., Vician, C., & White, C.E. (2015) Accounting Information Systems (AIS) Course Design: Current Practices and Future Trajectories. *Communications of the Association for Information Systems*, 36. Retrieved from http://aisel.aisnet.org/cais/vol36/iss1/30

Owen, G. (2015). *Using QuickBooks Accountant 2015*. Cengage Learning.

Topi, H., Valacich, J.S., Wright, R.T., Kaiser, K., Nunamaker, J.F., Sipior, J.C., & de Vreede, G. (2010). IS 2010: Curriculum Guidelines for Undergraduate Degree Programs in Information Systems. *Communications of the Association for Information Systems*, 26. Retrieved from http://aisel.aisnet.org/cais/vol26/iss1/18

APPENDIX

I. AIS Couse Exit Survey Questions with Results

Question	Mean	Median	Mode
1) The lab component of this course helps to reinforce the concepts taught in lecture.	4.53	5.00	5.00
2) I believe the hands-on experience in the lab using QuickBooks was a value adding activity and I am glad I was provided the opportunity.	4.87	5.00	5.00
3) I believe the hands-on experience in the lab using SAP was a value adding activity and I am glad I was provided the opportunity.	4.47	5.00	5.00
4) Having the opportunity to have hands-on experience with two different Accounting Information Systems helped me understand AIS processes in general, which could be applied to any AIS system I use in my career.	4.63	5.00	5.00
5) The AIS lab component of this course made me more marketable to my target profession.	4.27	5.00	5.00
6) I wish the lab provided a more in depth experience with SAP. Having only limited experience with QuickBooks and SAP was not as valuable as more experience with SAP.	2.73	3.00	3.00
7) I wish the lab provided a more in depth experience with QuickBooks. Having only limited experience with QuickBooks and SAP was not as valuable as more experience with QuickBooks.	3.27	3.00	2.00

The response scale was: 1 - Strongly Disagree, 2 – Disagree, 3 – No opinion, 4 – Agree, and 5 - Strongly Agree

JABE

Journal for Advancing
Business Education

11374 Strang Line Road
Lenexa, Kansas 66215 USA

JABE 105