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The Use of a Well-Designed Instructional Guideline in Online MBA Teaching

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Abstract

This study investigated the positive impact of a teaching practice on student learning outcomes in an online MBA program. An instructional project guideline was developed to help online students enhance their achieving required learning objectives corresponding to five categories of Bloom's Taxonomy. The course learning objectives are based on primary course standards well-received by the Association to Advance Collegiate Schools of Business (AACSB) for online MBA programs, and student learning outcomes were assessed with a pre-designed assessment rubric. All data were collected from student projects in an online MBA operations management course over the last four-year period. The results of this research indicated the efficacy of the instructional project guideline in: using information technology to enhance personal and organizational effectiveness; helping online students achieve the required learning objective to evaluate a resource allocation and a marketing, production management decision using appropriate quantitative or qualitative tools; assess individual and group competencies in a virtual team as well as producing plans to improve personal and team effectiveness.

Keywords: Instructional project guideline; learning objective assessment; Online MBA teaching.

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Introduction

"I hear and I forget. I see and I remember. I do and I understand." -- Confucius - Chinese philosopher and reformer (551 BC - 479 BC)

Growing competition and globalization of organizations have heightened the competitive nature of business and the increased use of technology has changed the very nature of work. These technological changes have had a substantial impact on the skill sets required in the work force (Kirsch, Braun & Yamamoto, 2007). In an effort to increase efficiency, it is essential for managers to become adept at learning asynchronously from multiple locations through the use of technology. Teaching managers to be prepared for today's workforce requirements has made online learning a necessary skill set for effective managers. Previous concerns over the efficacy of online learning have gradually eroded and Kenny (2002) found that educational benchmarks can be achieved equally well in an online learning format as in a traditional face-to-face course. The purpose of this paper is to examine the effect of a course instructional tool on students' performance in relation to the established program learning objectives.

Managers must be skilled in the use of information technology to improve the effectiveness of the business. Skill in processing information, given the abundance of data available in the public domain paired with a manager's knowledge and experience, is considered to play an integral role in the effectiveness of an organization as well as the ultimate success or failure of the business (Moorman, 1995; Lievens & Moenaert, 2000; Van Riel, Lemmink & Ouwersloot, 2004). The use of information technology to support decision making in successful firms has also been shown to be impacted by the composition of the decision making team and mediated by decision maker experience and perspective (Van Riel, Semeijn, Hammedi, & Henseler (2011). The first research question is can graduate students working in a completely online environment evaluate and appropriately use information technology to enhance personal and organizational effectiveness?

Graduate students in the field of business learn that managers are expected to have an understanding of scarce resources and must make decisions on the allocation of those resources. Learning to optimize the allocation of resources, managers can improve operational efficiency (Karim & Arif-Uz-Zaman, 2013). Research has shown managers improve efficiency through decisions regarding the allocation of resources in many areas throughout the value chain from procurement of raw materials, manufacturing and distribution, or the rendering of services, through the final marketing to customers (Cavinato, 1992; Sven-Oliver, Tyler & Brennan, 2007). Therefore, the second research question addressed is can graduate students working in a completely online environment evaluate a resource allocation and a marketing, production or service management decision using appropriate quantitative or qualitative tools?

In today's internet era it is widely believed that managers must also be relatively proficient in working within virtual teams (Williams, 2016). They will need to process information, make decisions, and solve complex problems while working asynchronously. The challenge of accomplishing these tasks in a face-to-face environment is compounded in virtual environments due to lower levels of trust among members, less team cohesion, lower quality of communication, and lack of leadership that results in difficulty in developing procedural norms (Curseu, Schalk & Wessel, 2008). Also, one of the cardinal functions of management, planning, is much more difficult in virtual teams. The technology used for communication between team members limits the information processing capabilities of virtual teams, and skill in planning is directly related to team effectiveness (Ilgen, Hollenbeck, Johnson, & Jundt,

2005). As such, the third research question is can graduate students working in a completely online environment assess individual and group competencies in a virtual team and produce plans to improve personal and team effectiveness?

To evaluate the three research questions described above, the case study method was implemented – which is an approach proposed to apply to theory development and problem solving (Eisenhardt, 1989). Problems in business are often less clear cut than problems in the sciences, because researchers have little control over the business problem to be studied and the focus is often on an issue set in a real-life context (Yin, 1994). Due to these factors, case studies are often preferred in a pedagogical environment. The single case study provides a detailed examination of practices within an individual business as a basis for research. This type of study also often uses comprehensive data gathering beyond the information provided by the subject business to develop explanations for the findings (Flynn, Schroeder & Sakakibara, 1995). Therefore, the single case study method was adopted in this research.

Previous research has examined how to engage undergraduate business students in an operations management course delivered in a face-to-face format using the case study method (Kang, et al., 2010). Case method takes such forms as a traditional written case, simulated case, and live case (Elam & Spotts, 2004). Among these forms, the live case method is a type of experiential learning that involves students in the real life business context and engages them to solve real life business problems (Elam & Spotts, 2004). This study was a follow-up in an operations management course but using graduate students in a Master of Business Administration (MBA) program in a completely online format. The previous study (Kang, et al., 2010) considered comprehension and application of course materials using experiential learning. Using the same measurement instrument and the single case study method, this research examined experiential learning in an online course at the graduate level.

The organization of this paper is as follows. Following the introduction is the literature review, which defines and explains those recent online MBA education teaching issues, including: overall trend in online MBA education, experiential learning, related pedagogical changes, the role of the instructor, and the assessment of online learning. The methodology section then follows and describes the implementation of the single case study approach along with findings of the study. Then the result analysis section describes the collected data about a case study and discusses the potential implications. Finally, conclusions are presented as well as limitations of the study and suggestions are offered for future research.

Literature Review

As a result of technological advancements, the delivery of management education by means of online communication has gained increasing importance (Popovich & Neel, 2005). Consistent findings indicate that experiential learning has the potential to make online management education more effective (Erez, et al., 2013). The operations management field, however, has heavily relied on a combination of texts and cases rather than experiential methods.

Online Management Education

New developments and advancements in information and communication technology have largely changed how work is done in organizations. Given the rise of virtual communication and collaboration in the workplace, more and more business schools have adopted virtual technologies and offered distance learning programs (Erez, et al., 2013; Taras, et al., 2013). Online courses typically rely on "the use of the Internet to

access learning materials; to interact with the content, instructor and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience" (Ally, 2004: 5). Online management education aims at enhancing students' problem solving, critical thinking, teamwork, and managerial skills by using a virtual communication environment to meet specific learning outcomes (Hwang & Arbaugh, 2009).

Arbaugh and his colleagues (Arbaugh et al., 2009; Arbaugh, Desai, Rau, & Sridhar, 2010; Arbaugh & Hwang, 2013) have reviewed the literature on online management education in the last fifteen years and posit that the adoption of online education methods has positively and significantly influenced a wide range of management subfields such as operations management, organizational behavior, strategic management, and international management. Moreover, there is evidence suggesting that online education is as effective as traditional face-to-face education in improving students' managerial knowledge, skills, and abilities (e.g., Friday, Friday-Stroud, Green, & Hill, 2006; Daymont & Blau, 2008). For example, Fan (2009) proposes some teaching reform ideas in a management information system course of an online MBA program with a focus on the use of a case study approach. Another trend in developing online MBA programs is not only attempting to meet those non-traditional students' demands, but also through the development of a high quality online education program with a well selected faculty group and program design – which has quickly been recognized by the national educational media (Roe, Toma, & Yallaprogada, 2015). Finally, the effort of assessing the effectiveness of student learning through an online program versus that of traditional teaching programs has been also addressed with the conclusion that the students' performance is relatively independent to the teaching mode of instruction, which certainly opens a new window for online educational programs (Ni, 2014).

Experiential Learning

Knowledge construction by way of online management education can take the experiential learning approach (Benbunan-Fich & Arbaugh, 2006; Arbaugh & Benbunan-Fich, 2007). From the experiential learning perspective, learning can be defined as "the process whereby knowledge is created through the transformation of experience, and knowledge results from the combination of grasping and transforming experience" (Kolb, 1984: 41). Experiential learning stems from Dewey's (1938) "theory of experience", which stresses the importance of the experiential approach to education. More recently, Kolb and his colleagues (Kolb, 1984; Kolb & Kolb, 2005) have proposed experiential learning theory, which suggests that experiential learning motivates learners to touch all the bases of learning such as experiencing, reflecting, thinking, and acting in a recursive learning cycle that is responsive to contextual demands. Typically, concrete experiences result in observations and reflections, which are, in turn, integrated into abstract concepts that one can draw implications to be actively examined (Kolb & Kolb, 2005).

Experiential learning is especially important for MBA students. There have been long standing calls to address the criticism of business education in general, and MBA programs in particular, as being passive, theoretical, unrealistic, and unable to help business students adapt to changes and challenges in the real world (Mintzberg, 2004; Bennis & O'Toole, 2005; Graen, Hui, & Taylor, 2006). MBA students must have much

breadth or depth of real-world experience to be effective and successful in the workplace. One of the purposes of business schools is to socialize business students with the attitudes and behavior that organizations desire. Learning and teaching methods must thus assist MBA students in the socialization of real-world experiences and "bring to life" organizational contexts.

A growing body of research has provided evidence for the effectiveness of experiential learning in management education (Cheney, 2001; Ng, Van Dyne, & Ang, 2009; Taras, et al., 2013). For example, students have reported high levels of satisfaction, performance, and learning gains when experiential activities are included in their courses (Ball, 1999; Hakeem, 2001; Blunsdon, Reed, McNeil, & McEachern, 2003). Joshi, Davis, Kathuria, and Weidner (2005) posit that students' immersion into a particular management subject matter through the experiential learning process provides them with a foundation from which managerial analysis and reflection lead to learning.

Although experiential activities have been increasingly involved in the management curricula such as organizational behavior and organization theory (Bowen, Lewicki, Hall, & Hall, 1997), the use of experiential projects as a learning tool has been limited in operations management courses. As an exception, Babbar (1994) found that students perceived experiential learning to be preferable to the traditional instructional method in an undergraduate operations management class. Similar evidence of benefit from experiential projects is reported by Kang, et al. (2010) and Polito, Kros, and Watson (2004). However, all three of these studies explore the use of experiential learning activities in undergraduate operations management courses. In comparison, this study contributes to the body of knowledge by investigating the effectiveness of experiential projects in a completely "online" operations management course at the MBA level.

Pedagogical Issues Related to Experiential Learning

Business schools have recognized that business students must experience work-related events in their education to be well prepared for the dynamic, complex business environment (Chen, Donahue, & Klimoski, 2004; Graen, Hui, & Taylor, 2006; Kark, 2011). Knowledge should not be simply transferred from instructors to their students (Rovai, 2004; Armstrong & Mahmud, 2008). Students learn better when they have to discover things by themselves rather than when they are told what to do (Leidner & Jarvenpaa, 1995). Therefore, as a student-centered pedagogy, the instructor's role is to facilitate student learning, not to rely on lectures (Gremler, Hoffman, Keaveney, & Wright, 2000; StoBlein & Kanet, 2008; Kang, Yang, & June, 2010). In order for experiential learning to be effective, research should address the various pedagogical issues involved in this particular pedagogy. There are two most important pedagogical issues to be addressed for the success of experiential learning: the role of the instructor and the assessment of experiential learning.

The Role of the Instructor

The role of the instructor is still paramount in an online course with the use of experiential learning. First, it is the instructor's responsibility to help students meet learning objectives. The instructor uses experiential learning projects to assist students in the development of "real world" skills and abilities that organizations seek.

Furthermore, the instructor must motivate students to integrate the new skills and abilities into their way of perceiving, thinking, and feeling in order to augment learning outcomes. For example, according to the instructional guide developed for this particular experiential project, students are expected to evaluate the product strategy and five competitive forces of the company they choose to study. Based on their analysis, they must offer three recommendations that reflect current business trends to attain the learning objective that pertains to enhancing personal and organizational effectiveness.

More importantly, the instructor must improve student engagement, particularly in an online course. Compared to the traditional classroom teaching, online teaching requires the instructor to master the skill to get students engaged and motivated. The instructor must be actively involved with students to provide them with information, resources, and guidance. For example, the instructor can develop online interactions with students such as explaining assignments, responding to questions, providing insights and real-life applications of course concepts, and giving feedback on student learning (Whiting & de Janasz, 2004). In addition, experiential learning is inductive and explorative, which needs active student participation (Alon, 2003). Wu and Katok (2006) point out that student performance improves when students have the opportunity to participate, interact, collaborate, and share knowledge and information. The instructor must thus encourage students to participate.

Finally, the instructor should help students improve critical thinking and problem solving skills. For example, the instructor needs to encourage students to interpret data or information from an organizational perspective and make practical implications for decision making (Onofrei & Stephens, 2014). Given the ever changing business environment and technological advancements, sometimes there are no clear-cut rules for making business decisions (Gordon, 1993). In such situations, one has to rely on his or her past experience to make proper judgments. It is thus necessary for the instructor to promote experience-based learning to assist students in developing "principles" for decision making so as to respond to changes and challenges in the fast changing world (Wu & Katok, 2006).

Appropriate Assessment of Experiential Learning

Instruction, learning, and assessment must be compatible with one another to enhance teaching effectiveness (Kang, et al., 2010). To increase the effectiveness of using an experiential project in an online operations management class, the instructor must adopt measurable assessment methods to evaluate student learning outcomes. It is suggested that business educators provide clear and specific directions to their students. For example, for this particular course project, the instructor provided three clear and measurable learning objectives established by the program requirements such as: 1) evaluating the appropriate use of information technology to enhance personal and organizational effectiveness, 2) evaluating a resource allocation and a marketing, production or service management decision using appropriate quantitative or qualitative tools, and finally 3) the instructor assesses individual and group competencies in a virtual team as well as produces plans to improve personal and team effectiveness.

The instructional tool should not only help students understand and apply operations management constructs and develop critical thinking and problem solving skills, but also provide a rubric for assessing student learning outcomes. According to the instructional tool designed for this case study method, students have clear expectations of the content that must be included in their project. They are asked critical questions about each important aspect of operations such as products, process, quality, and vertical integration to consciously seek answers for them during their research. Additionally, the instructional guideline provides students with a framework to assist them in organizing their written reports from the general introduction of the company, Porter's Five Forces, aspects of operations, other factors, to conclusions and recommendations. Students are also expected to submit a report that has an accurate table of contents.

The three major learning objectives and its related assessment questions are summarized below:

Table 1:
Targeted Learning Objectives and Related Measurement Questions

Learning Objective 1	Evaluate and appropriately use information technology to enhance personal and organizational effectiveness (knowledge & skill).
	1. Does the report have an accurate table of contents? 2. Does the operations section include all required areas? 3. Are there at least three recommendations offered? 4. Are there at least five external references provided beyond corporate filings/website?
Learning Objective 2	Evaluate a resource allocation and a marketing, production or service management decision using appropriate quantitative or qualitative tools (knowledge & skill).
	1. Are each of Porter's Five Forces analyzed? 2. Are financial tables used to describe the firm's financial posture? 3. Are financial ratios used to describe the firm's financial posture? 4. Do recommendations describe the expected outcome if recommendations are followed? 5. Are paper's recommendations practical and reflecting the current business trend?
Learning Objective 3	Assess individual and group competencies in a virtual team and produce plans to improve personal and team effectiveness (knowledge, skill & attitude).
	1. Assuming group members are contributing equally, is the writing style and wording choice consistent throughout the whole paper? 2. Assuming group members are cooperate well with in-group discussion, is the content flow of the paper smooth and all sections well connected? 3. Assuming there is collective effort among group members in analyzing and discussing the case, is the conclusion section consistent and logical with the introduction-analysis-problem identification-plan of action?

Based on the primary research questions of this study as discussed earlier, the following three hypotheses were developed:

> **H1**: *The use of a well-designed instructional project guideline will help online students enhance their performance in terms of achieving the required learning objective of being able to "evaluate and appropriately use information technology".*

H2: *The use of a well-designed instructional project guideline will help online students enhance their performance in terms of achieving the required learning objective of being able to "evaluate a resource allocation and a marketing, production or service management decision".*

H3: *The use of a well-designed instructional project guideline will help online students enhance their performance in terms of achieving the required learning objective of being able to "assess individual and group competencies in a virtual team and produce plans to improve personal and team effectiveness".*

Research Methodology

This research investigates the positive impact of a new teaching practice on student learning in an online MBA program. The data collection and its research methodology are described below.

Sample

In this research, 30 previous student case reports were randomly selected from over 200 collected during 2010 – 2014 from students who attended the Georgia WebMBA Program and had taken an MBA-level, semester-long Operations Management course. The student case studies covered the manufacturing and service companies of various sizes (large or small), locations (local, regional, national, or international), financial standings, and industry positions. Among 30 selected student case reports, 21 satisfied the purposes of this research and were selected for further analysis. A summary of demographic information is below.

Table 2:
Demographic Information Summary

Industry Type	Manufacturing		Services		Manufacturing and Services		
	57.14%		38.10%		4.76%		
Company Size	Large		Medium		Small		
	90.48%		4.76%		4.76%		
	Employee Numbers	Annual Sales	Employee Numbers	Annual Sales	Employee Numbers	Annual Sales	
	3,200 – 327,000	$1.8B-$173B	N/A	$820,000	N/A	$12,000	
Locational Orientation & Scale	Local		Regional		International		National
	4.76%		4.76%		76.19%		14.29%
Major Products/ Services	Food		Airlines		Automobile		Insurance
	28.57%		9.52%		4.76%		4.76%
Company Financial Posture	Good		Average		Poor		
	90.48%		4.76%		4.76%		
Position in Market Competition	Leader		Middle		Follower		
	85.71%		N/A		14.29%		

In Table 2, over half (57.14%) of the industries chosen were in the manufacturing sector and most (90.48%) were considered large manufacturers. Manufacturers were considered large if they employed greater than or equal to 250 employees, regardless of revenue, or, if the number of employees was unknown, then revenue of greater than or equal to $22.8 million was taken as an indicator that it was a large business. The possible explanation for this may lay in the fact that most student teams believe that a large company normally will have a better website for the related information search and have a better business story to tell. Not surprisingly, most of the large manufacturers selected for students' term project were operated in the international environment (76.19%) while about 15% were national companies, and less than 10% were local or regional. This is a clear indication that in today's global competitive marketplace, most U.S. large businesses have been expanding to foreign countries to gain a potential competitive advantage.

In terms of the industries selected by student teams for their term project, quite a wide range were represented with the most analyzed being in the food industry (28.57%). To ensure the representativeness of the company selected in this research to the real business world, the company's financial posture and its position among competitors were checked. As shown in Table 2, an overwhelming majority of the companies reported a good financial posture (90.48%) and were leaders among competitors in the industry (85.71%). This seems to imply that student teams tended to select famous and well reported companies for their case study – assuming that may have provided a positive impression to their peers and the instructor.

Assessment Rubric

An assessment rubric (see Appendix) was designed in this research as the analytical framework for assessing and rating the selected sample student case reports. The information collected through this assessment rubric was then analyzed to address the proposed research questions in this study of the effect of a course instructional tool on students' performance in relation to the established program learning objectives.

The assessment rubric has two sections. The first focused on the content and the structure of the case studies. This rubric was to determine whether each of the students followed the instructional guide by addressing each of the eleven required components in the guideline. For the four items listed in this section, the rater was first asked if the case study report being evaluated followed the guidelines with a YES or NO choice. Then, for the "YES" category, it was rated as "Supportive" or "Not Supportive". The second section of the rubric had eight items which were more case study content-related questions. Those questions were carefully designed to attempt to measure the students' learning performance based on the three established program learning objectives. Five levels of ratings were used in this research for those items: Excellent, Good, Satisfactory, Fair, and Poor. As discussed above, this section of the rubric was designed to determine the success of this experiential learning project in terms of building students' higher-order thinking skills as required by the program learning objectives. In addition, this part of the rubric was based on the Taxonomy of Education Objectives, also called Bloom's Taxonomy of Learning (Bloom et al., 1956). Bloom's Taxonomy of Learning was chosen as the theoretical basis because the learning outcomes specified in the taxonomy were in congruence

with the educational objectives and activities represented in the experiential learning project (Krathwohl, 2002). Experiential learning as an instructional method emphasizes problem-solving in real-life contexts, knowledge transfer, and higher-order thinking skills (Elam & Spotts, 2004). Therefore, in order to properly assess the effectiveness of an experiential learning project, such a framework allowed the assessment of those more complex cognitive processes.

There are six major categories (knowledge, comprehension, application, analysis, synthesis, and evaluation) in Bloom's Taxonomy ranging from simple to complex and from concrete to abstract (Bloom et al., 1956). These six categories represent a cumulative hierarchy, i.e., achievement of any lower category of the learning outcomes on the taxonomy is considered necessary before achievement of any higher category of the learning outcomes (Anderson, 2005). Knowledge is demonstrated through recalling or recollecting terminology, facts, and other specific information. Comprehension is demonstrated through the ability to understand and interpret the meanings of learning material. Application is demonstrated through using what one has previously learned in a new and concrete situation. Analysis means to break down a learning material into component parts in order to establish relationships and reveal the underlying structure. Synthesis is reflected in the ability to create a whole from parts in order to generate new knowledge. Evaluation is reflected in the ability to judge the quality of materials learned based on certain criteria or standards. For this research, the five categories from *comprehension* to *evaluation* were retained in our assessment rubric and the *knowledge* category was omitted because recalling or reciting course information was not an objective for this particular class assignment.

Data Validation and Data Analysis Process

To ensure the validity and consistency of student report evaluations and rating processes, a pilot-testing was conducted before distributing these 30 case reports to three raters. First, ten student reports were randomly selected as the "sample" and rated independently by each of the three raters. Then, the three ratings were compared and validated through peer reviewing and debriefing in order to build credibility and reliability of the later formal rating results among the three raters. In the process, for each item in the assessment rubric, at least two of three ratings were required to be in agreement, and the rating provided by the third rater must not have been more than one point apart from the other two. When a larger discrepancy occurred, all three raters compared their research notes, deliberated and clarified the definition and criteria associated with each of the items, and reached a final agreement at the end. These agreed criteria were applied by all three raters on a consistent basis throughout the rating process for all 30 selected sample student project reports. In addition, to further reduce any potential bias, the total of 30 student case reports were assigned evenly (one-third to each rater) among three raters - who evaluated the student reports independently.

Upon the completion of the rating process, all data collected from the rating process were summarized into four tables with related descriptive discussions and some quantitative analyses (to be presented in the next section). Then, based on the primary research questions of this study as discussed earlier, the three hypotheses were statistically tested with a follow-up discussion of implications.

In the hypotheses, the "*use of a well-designed instructional project guideline*" was employed as the independent variable, and each of the three learning objectives corresponding to the five categories of Bloom's Taxonomy were treated as the dependent variables. The descriptive statistic results for the hypotheses are presented in the next section.

Results

The observation sheets were analyzed by all three raters and nine were not selected due to missing data and incomplete forms. The data from the remaining twenty-one student teams made up the final sample size and were analyzed using the single case study method. The results were compiled in three tables.

As discussed earlier, from the case report structure and content perspective, four questions were designed to examine the related trend, and the results are reported in Table 3, Assessment of the Measurement of Learning Objective 1. Having an accurate table of content for a professional report can be viewed as a basic trained professional skill. As shown in Table 3, just over half (57.15%) of sampled student projects had an accurate table of contents while 9.52% of them provided an inaccurate table of contents (e.g., wrong page numbers) and the rest 33.33% did not have a table of contents. This result provided a clear signal that the instructor should add a separate statement about an accurate table of content as a requirement in the related instructional project guideline, with the necessary wording for explanation. Next, very positive evidence for this proposed instructional guideline was that all (100%) sample student team case reports followed the guideline to make their reports' operations sections include all required areas. In a typical student case report, including both undergraduate and graduate levels, the weakest area for students has been the lack of motivation or capacity to make their own recommendations to the businesses they just described and analyzed. In that regard, Table 3 showed about 43% of the sampled projects provided at least three recommendations, while the rest either only provided one or two, or no recommendations at all. That result suggested the related training in this area must be enhanced and implemented in the teaching process. Finally, searching outside information and providing sufficient outside related references is a critical and extremely important skill for an online MBA student. The fourth question in Table 3 attempted to measure this element – a positive proof for the proposed instructional guideline was that about 81% of all sampled project reports had at least five external references beyond the information on corporate filings/website. More specifically, this result indicated the proposed instructional guideline can help instructors assess learning related to the first learning objective - evaluating and appropriately using information technology to enhance personal and organizational effectiveness. Hypothesis 1 was basically supported by this research.

Table 3:
Assessment of the Measurement of Learning Objective 1

Measurement Questions	Yes		No	Other
	Supportive	Non-Supportive		
Does the report have an accurate table of contents?	57.15%	9.52%	33.33%	
Does the operations section include all required areas?	100%	0%	0%	
Are there at least three recommendations offered?	42.86%	0%	57.14%	
Are there at least five external references provided beyond corporate filings/website?	80.95%	0%	19.05%	

The Measurement of Learning Objective 2 is designed to evaluate Hypothesis 2 (H2). The related results are presented in Table 4. This hypothesis examined the ability of graduate students working in a completely online environment to evaluate resource allocation and marketing, production or service management decisions using appropriate quantitative or qualitative tools. The measurement instrument examined the student teams' understanding of Porter's Five Forces, financial tables, financial ratios, and recommendations.

Table 4:
Assessment of the Measurement of Learning Objective 2

Measurement Questions	Mean	St. Deviation	Sample Size
Understanding of Porter's Five Forces	3.43	1.63	21
Use of financial tables to describe the firm's financial posture	2.43	1.21	21
Do recommendations describe the expected outcome if recommendations are followed?	2.81	1.69	21
Are paper's recommendations practical for a real life business?	3.29	1.79	21
Are paper's recommendations reflecting the current business trend?	3.24	1.79	21

(Note: 1-5 Likert Scale was used to measure these questions where: 5-Excellent, 4-Good, 3-Satisfactory, 2-Fair, and 1-Poor)

Using a 5-point Likert scale where five is equal to excellent, student teams scored in the upper half of the measurement when using qualitative tools such as Porter's Five

Forces and recommendations that were applicable to real life businesses as well as reflective of current business trends. However, student teams were assessed to be in the lower half of the measurement between fair (2) and satisfactory (3) when using quantitative tools such as financial tables or ratios to describe the firm's financial posture. This also led to a similar rating below satisfactory when student teams attempted to describe the expected outcome if their recommendations were followed. As a result of this analysis, it appeared student teams were proficient in evaluating resource allocations or operational decisions using qualitative tools, but may require more instructors' input when using quantitative tools and interpreting the outcome. Therefore, H2 was moderately supported.

Similarly, Table 5, the assessment of the Measurement of Learning Objective 3, shows the means and standard deviations of the measurements of learning objectives using a 5-point Likert scale (e.g., 1 = poor; 5 = excellent). The first measurement question on whether the writing style and wording choice was consistent throughout the whole paper had a mean of 4.38 (s.d. = .74). The mean of the second measurement question as to whether the content flow of the paper was smooth and all sections were well connected was 4.24 (s.d. = .94). The third measurement question regarding whether the conclusion was consistent and logical with the recommendations had a mean of 3.57 (s.d. = 1.29). The results suggested that our guideline can assist instructors in assessing individual and group competencies in a virtual team and producing plans to improve personal and team effectiveness. Hypothesis 3 was thus supported.

Table 5:
Assessment of the Measurement of Learning Objective 3

Measurement Questions	Mean	St. Deviation	Sample Size
Is the writing style and wording choice consistent throughout the whole paper?	4.38	.74	21
Is the content flow of the paper smooth and are all sections well connected?	4.24	.94	21
Is the conclusion consistent and logical with the recommendations?	3.57	1.29	21

(Note: 1-5 Likert Scale was used to measure these questions, where: 5-Excellent, 4-Good, 3-Satisfactory, 2-Fair, and 1-Poor)

Discussion

The results described above indicate that all three research questions were supported. In analyzing the first research question, Table 3 indicates that graduate students working in a completely online environment can evaluate and appropriately use information technology to enhance personal and organizational effectiveness. Table 4 provides support for the ability of graduate students working in a completely online environment to evaluate a resource allocation and a marketing, production or service management decision using appropriate quantitative or qualitative tools. And finally, Table 5 indicates graduate students working in a completely online environment can

assess individual and group competencies in a virtual team and produce plans to improve personal and team effectiveness.

There are several instructional implications that can be derived from this study that can improve student performance, help to meet learning objectives, and provide a clear link to the research questions. The first lesson learned was nearly 43% of case reports had inaccurate or missing tables of content. While this may appear an elementary oversight, the fact that so many did not meet the standard could imply a lack of professionalism among the students and/or the program. A simple fix to this issue would be to add the requirement and expectation for a table of content to the instructional project guideline. For example, the instructor would provide an example of an accurate table of contents and clearly state that an accurate table of contents is needed in the instructional project guideline.

Another very important implication was nearly 57% of the case reports lacked the required three recommendations. This could be the most indicative or meaningful implication in that the development of recommendations requires the highest levels of thought in Bloom's taxonomy, namely application, analysis, synthesis, and evaluation. To address this issue, instructors should enhance the training in this area through focused exercises designed to facilitate the students' creative thoughts and improve their reasoning and problem solving skills necessary for developing recommendations.

Finally, the third implication learned was the lack of student skills in the use of quantitative tools. Student teams across all case reports were assessed to have a mean score greater than satisfactory when using qualitative tools such as Porter's Five Forces, but a mean score less than satisfactory was found when describing a firm's financial posture using financial tables or ratios. This result also implies the instructor must enrich the education of students with dedicated work in the use of quantitative tools and financial tables. In a practical sense, there should be several available ways for the instructor to do so in an online teaching environment.

Conclusion

This empirical study used the case study method to evaluate an instructional project guideline in an online MBA course to examine student performance in terms of achieving required learning objectives corresponding to the five categories of Bloom's Taxonomy. Three hypotheses were constructed to examine if online MBA students were able to: 1) evaluate and appropriately use information technology to enhance personal and organizational effectiveness, 2) evaluate a resource allocation and a marketing, production or service management decision using appropriate quantitative or qualitative tools, and 3) assess individual and group competencies in a virtual team as well as produce plans to improve personal and team effectiveness. All three hypotheses were examined with the assistance of an instructional project guideline. Data were collected from student projects in an online MBA operations management course over the last four-year period. The results showed all three hypotheses were largely supported but at different degrees. For example, student teams tended to be proficient in evaluating resource allocations or operational decisions using appropriate qualitative tools, but may need more input or guideline from instructors when they use quantitative tools and interpret results. This research provides instructional implications and insights that will help improve student performance and meet

learning outcomes. It also adds new contributions to the research field of experiential learning in online MBA programs.

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Appendix: Observation Sheet

Part I. Demographic Information

Company Name		
Industry Type	Manufacturing	
	Service	
Size	Employee Numbers	
	Annual Sales	
Local, Regional, National or International Company (State, Country)		
Major Product/Service		
Current Financial Posture (Good, Average, or Poor)		
Position in the Industry/Major Competitors - Leader - Follower		
Other Information		

Part II. Evaluation Rubric

	Yes		No
	Supportive	Non-Supportive	
Does the report have an accurate table of contents?			
Does the operations section include all required areas?			
Are there at least three recommendations offered?			
Are there at least five external references provided beyond corporate filings/website?			

	Excellent (5)	Good (4)	Satisfactory (3)	Fair (2)	Poor (1)
Understanding of Porter's Five Forces					
Use of financial tables to describe the firm's financial posture					
Do recommendations describe the expected outcome if recommendations are followed?					
Are paper's recommendations practical for a real life business?					
Are paper's recommendations reflecting the current business trend?					
Is the writing style and wording choice consistent throughout the whole paper?					
Is the content flow of the paper smooth and are all sections well connected?					
Is the conclusion consistent and logical with the recommendations?					