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Introduction

Welcome to this issue of the ***Business Education Innovation Journal***.

The purpose of this journal is to assemble researched and documented ideas that help drive successful learning and motivate business students to learn. The intention is to draw ideas from across both methods and disciplines and to create a refereed body of knowledge on innovation in business education. As a result, the primary audience includes business education faculty, curriculum directors, and practitioners who are dedicated to providing effective and exciting education.

We invite you to read about innovations published and apply in your classroom. We also encourage you to develop your original creative ideas, prepare an article, and submit for review.

This particular issue includes a number of interesting classroom innovations in diverse areas.

Peter J. Billington
Editor

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Book Review: *Great Leaders Grow: Becoming a Leader for Life*

Reviewed by Brenda Hayden-Sheets
Murray State University, KY

Title: Great Leaders Grow: Becoming a Leader for Life
Authors: Ken Blanchard and Mark Miller
ISBN: 978-1-60994-303-5
Pages: 128
Cost: $22.95
Publisher: Berrett-Koehler Publishers, Inc.; San Francisco Edition: First
Date Published: 2012

ABSTRACT

Authors Blanchard and Miller track the developmental steps of their Blake Brown as he grows to become a selfless leader. Blake's mentor, Debbie Brewster, guides him in the fundamentals of leadership through the GROW model: "G" represents "Gaining Knowledge" about oneself, others, one's industry; "R" translates as "Reaching Out to Others"; "O" means "Opening Your World" at work and outside of work to learning experiences; and "W" equates to "Wisdom,"—the essence of the G-R-O in becoming a leader. As a recognized leader in his company, Blake guides his troubled company to also develop according to the GROW model.

Book Review of *Great Leaders Grow: Becoming a Leader for Life*

The narrative begins with Blake, a 22 year-old college business student, grieving over the unexpected death of his father who was a prominent leader in the community. Understanding Blake's sense of loss, Debbie Brewster, a protégé of Blake's father for 10 years, in turn, offered Blake her services as a mentor. As the authors chronicle Debbie's guidance of the young man into becoming a leader, the readership finds itself vicariously living through Blake's experiences as they, too, may aspire to become leaders.

To lead Blake in promoting his identity and building self-confidence, Debbie asked him to review his strengths and weaknesses. Through their discussion, he realized that accepting past mistakes was a means of learning from them. Debbie noted, "That's one of the things leaders do extremely well" (p. 10).

As Blake's focus turned to finding a job after graduation, he questioned why a company that he recently visited chose several employees to interview him. Debbie took this opportunity to encourage Blake to think about sound decision-making, whether it was for satisfying a potential employer, a potential employee, or anyone searching for a solution. Their conversation clarified his understanding of a company's decision making process, in this case, determining whether he was the best candidate for the position. The company defined the need for a new employee, determined criteria the new hire must meet, evaluated the candidates with the greatest potential, and finally, through a joint effort of several employees, would choose the ideal candidate. Blake reflected upon the goal of making a good choice "is … the most important decision a leader makes" (p. 19).

Blake gained another lesson on leadership during his interview with the president of the company. Noticing rows of books in the president's office, Blake asked the president why he needed all the books when he already had achieved the highest position in the company. The response was "My capacity to learn determines my capacity to lead**.** If I stop learning, I stop leading" (p. 27). Blake grasped the point that leaders have a continuous need to grow in knowledge and understanding.

On another occasion, Debbie and Blake discussed the difference between a serving leader and a self-serving leader. Debbie reminisced that his father had guided her to understand that "great leaders don't think less of themselves; they just think of themselves less"' (p. 20). Excellent leaders, she added, strive to know the goals of their people and lead them to where they can achieve their goals. This lesson, like others noted by Debbie, helped him comprehend the make-up of a quality leader.

When Blake accepted the position for which he interviewed, Debbie introduced him to the GROW Model, a guide he could use throughout life to build his career. The "G" in the acronym of GROW represents "Gain Knowledge," of self, of others, of one's industry, and of leadership in one's role as an employee. Blake applied this skill in the workplace around him as he listened to conversations of managers, employees, and customers regarding work-related issues. By listening, he learned the company was losing customers to its competitors and falling behind, leaving employees fearful of being fired.

When Blake and Debbie later met, he revealed the company's poor performance and expressed his desire to help. Debbie addressed the "R" in GROW,--"Reaching Out To Others," inside and/or outside the company. As Blake engage in this step, he was able to assemble various perspectives, knowledge, and skills that could potentially solve the company's problems.

Blake proposed to his supervisor the formation of a cross-functional team composed of departmental representatives. The team was soon approved. With Blake's guidance, team members shared knowledge of problems in each of their departmental areas. They also interviewed senior leaders, along with disgruntled customers, to learn their perspectives of the company's performance. The team's findings indicated the company was negligent in operations and lacked good customer service.

Blake processed the findings, wrote a set of recommendations, and prepared a summarized presentation for delivery to senior management.

At Blake's next encounter with Debbie, she referenced the "O" of the GROW Model and explained it represented "Opening Your World" to opportunities which promoted professional and personal growth for a leader. Some of the opportunities might include shadowing someone, having lunch with someone different each day, traveling to different countries, and/or engaging in sports or hobbies. One of Blake's earliest applications of "Opening Your World" was his volunteering to serve as a counselor at a youth camp which enriched his perspective of balancing life with business.

In another visit with Debbie, Blake learned the meaning of the "W" in the GROW Model translated to "Walk Toward Wisdom" and defined as the "application of knowledge, discernment, insight, experience, and judgment to make good decisions when the answer may not be obvious" (p. 96). Wisdom was the cumulative result of "G"aining knowledge, "R"eaching out to others, and "O"pening up to experiences.

Debbie explained wisdom involved 1) self-evaluation and a focus on the truth about oneself, another, or organization; 2) honest feedback from others; 3) counsel from others; and 4) time—the pursuit of wisdom continues a lifetime.

At the workplace, Blake internalized the elements of wisdom while he delivered his part of the team presentation to management. The president of the company asked what was it that caused the company to get into trouble. When no one responded, Blake answered with wisdom, "We've not helped our leaders or our organization grow sufficiently to meet the changing demands of our world. We got caught providing yesterday's answers to today's problems" (p. 105). The president privately thanked Blake for his honest assessment and said, "You showed courage … [an] essential attribute for a leader" (p. 106). He appointed Blake to serve on a team to "ignite a culture of growth at [the company]. The place we're going to start is to help the leaders in this organization GROW" (p. 107).

Blake had become a leader who served others. Although conceding he had much to learn, he accepted the challenge to continue to grow as a serving leader to guide the organization from a struggling company to one of high performance.

The primary strength of this book is the fundamental components of leadership have efficiently been packaged within a few pages. It is not only a succinct, quality reading for adults who wish to improve their leadership abilities, but is also considered a well-grounded reading supplement for college business students aspiring to be leaders. Regardless of the audience, the book enriches one's understanding of quality leadership in serving others.

A New Perspective on Teaching Process Variation Causes

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ABSTRACT

Process quality variation causes are among the most important concepts covered in operations management courses. In this paper we present and discuss how the definitions of variation causes in popular operations management textbooks often create confusions for students. We specifically analyzed the applicability and limitations of different restrictive terms used to define variation causes. A new teaching approach is then proposed in the paper to help students understand the variation causes and their relative distinctions.

Keywords: Process variation, common causes, special causes, SPC, teaching

INTRODUCTION

Process quality control is an important topic covered in operations management (OM) or related courses. All processes that provide a good or a service surely exhibit a certain amount of variation in their output. The central problem in management is failure to understand the information in variations (Deming 1985). In the literature, common or natural causes are normally defined as the purely random, unidentifiable sources of variation that are unavoidable with the current process. Specifically, common causes include those small, inherent causes interacting with each other complicatedly to create consistent and stable overall process variations which cannot be predicted, identified, controlled, or avoided (Finch 2008, Montgomery 2005, Cachon and Terwiesch 2013, Krajewski et al. 2013, Heizer and Render 2013, Jacob and Chase 2011, Stevenson 2010). For example, the common causes may be the result of the type of equipment used to complete a process. A process that is operating with only common causes present is said to be in statistical control.

The other type of variation cause is called special or assignable causes, referring to sources that are not inherent in the process, appear sporadically, and disrupt the random pattern of common causes. The special causes are normally due to the wrong-doings associated with the process input and procedures which are not accepted as a normal part of the system. For example, special cause variability usually arises from three sources: improperly adjusted or controlled machines, operator error, or defective raw material. Such variability is generally large when compared to the background noise, and it usually represents an unacceptable level of process performance (Montgomery 2005, Collier and Evans 2010, Boyer and Verma 2009, Finch 2008). A process that is operating in the presence of special causes is said to be out of control.

To identify these variation causes, Walter Shewhart is credited with developing the control chart to separate the common and special causes of variation. Special cause variation tends to be easily detectable using statistical methods such as statistical process control (SPC) charts because it disrupts the normal pattern of measurements. Therefore special causes can be identified and prevented or at least explained and understood. Keeping special cause variation from occurring is the essence of quality control. A process that is in control does not need any changes or adjustments (Collier and Evans 2013).

As understanding the variation causes is essential for managing any quality control system (Evans and Lindsay 2005), a number of in-class experiments have been developed to help students distinguish special causes from common causes in certain situations (see Neureuther 2006, Fish 2007, Gaffney and Hays 2007, Chow et al. 2008, and Johnson 2011). However, while students may see what variation causes are in some cases, there is still much confusion around the general concepts of common and special causes. It is interesting to note that even today the most popular OM textbooks still do not provide clear enough definitions on variation causes to help students understand these terms effectively and efficiently.

CONFUSIONS

The way how variation causes are defined in texts, and the relative isolation between the definitions of variation causes and process control charts often make the definitions complex for students to comprehend entirely. To better

illustrate the issue, we propose two separate processes A and B (can be the same type of manufacturing process, belonging to two different firms), assuming A is performing at 4 sigma level, B operates at 2 sigma quality level, and both processes are in control (suppose A produces high end products and B produce low end ones). Surely there are only common causes present in both processes. However, process B has bigger system variability due to reasons of having more influential common causes (e.g., having older machines). In this particular example, students can often be confused by the following issues occurring during their learning process:

1. In any production process, regardless of how well designed or carefully maintained it is, a certain amount of inherent or natural variability always exists. Common causes affect every production process and are to be expected. This statement seems that the common causes are causing the minimal level of reasonable variations which cannot be eliminated and every process should expect to carry, for example, background noise type of variations carried by a 6-sigma process. However, in the above example, process A or B obviously contains much more variations than a 6-sigma process. If common causes are indeed purely random and unavoidable, why are some common causes for B avoidable to A? Since these common causes do not exist in process A, they are not really inherent. In fact, they can be identified and avoided, which somehow conflict with our earlier definitions.

2. In the literature the common cause variability or "background noise" is said to be the cumulative effect of many small, essentially unavoidable causes. The common causes are those countless minor factors, each one so unimportant that even if it could be identified and eliminated, the decrease in process variability would be negligible. If eliminating common causes cannot reduce process variability, then an in-control process cannot be improved for sure. Then, how an in-control 2-sigma process (like B) can be improved to 4-sigma level (like A)?

3. Some texts we surveyed also state a process in control does not need any changes or adjustments. This makes some students believe that "in-control" status represents kind of perfect or ideal quality performance people want to reach. However, this seemingly conflicts with the continuous improvement paradigm or Kaizen. What does it really mean for that "not need any changes" statement? Does that mean an in control 2-sigma process like B does not need any changes or adjustment to provide better output?

4. If common causes create the pure randomness of the system and we do not know what they are and how they interact with each other, how do we know they are inherent to the process? How do we know their characteristics such as small or unavoidable? Why can't common causes be created by some exterior factors which we do not know?

DISCUSSIONS

We found that many restrictive terms are used to define common causes in almost all popular OM textbooks we reviewed, including purely random, small, inherent, unavoidable, natural, and unidentifiable. In Merriam-Webster dictionary, random means chosen, done, etc., without a particular plan or pattern. Common causes result in constant variation reflecting pure randomness in the process which cannot be predicted. The pure randomness is the result of lack of information or knowledge, particularly, missing information about common causes and their direct operational impact. The word random describes the process behavior if we do not know the underlying causes. As such, random is a relative term. It has different meanings to different people, depending on the amount of information they possess. Further, common causes are defined to be inherent in the current process while special causes are not. As a result, specifying what a process really is in the first place is critical to defining the so-called common and special causes. Before speaking about common or special causes, one has to define what constitutes a process, what product the system produces, what inherent elements are, and what are possible external elements which should not be in the process.

Are common causes really small, unavoidable, and unidentifiable?

It should be noted that in any system, there are some common causes matching the earlier definitions nicely, for example, those background noises always exist no matter how well the process is managed (i.e., common causes for a 6-sigma process). These numerous small causes create purely random, unidentifiable, and unavoidable variations.

They can be due to the complex interactions of elements such as materials, tools, machines, operators, and the environment therefore are expected for all processes.

However, common causes are not just limited to background noises. According to Deming (1986), we shall speak of faults of the system as common causes, and faults from fleeting events as special causes. The common causes of variation also include poor design of process or product, inputs or procedures not suited to the high requirements, poor light, etc. Common causes are a result of the design of the product and production system and generally account for about 80 to 95 percent of the observed variation in the output of a production process. Therefore, common cause variation can only be reduced if the product is redesigned, or if better technology or training is provided for the production process (Evans and Lindsay 2005). In other words, many common causes can be identified and eliminated by redesigning the product or improving the process. As such, some of the restrictive terms used for defining common causes, including unavoidable and unidentifiable, may not be true in all circumstances.

The definition of common cause largely depends on how the process is defined. As we demonstrated early, even for the same type of production processes, the amount of inherent common cause variability differs from one process to another. For instance, older machines generally exhibit a higher degree of natural variability than newer machines. If the process operator admits the older machines as an inherent part of the system, then the old machines are considered and accepted as common causes which are constantly influencing the process output in a consistent and stable way. Although the higher degree of variability is caused by excessive common causes, the process (if only containing common causes) is still considered to be in statistical control. On the other hand, this again does not mean common causes can never be identified or eliminated, nor is it small. In the above case, if the operator compares the old machine process with another one equipped with new machines, it is evident that the higher degree of common variability is caused by the older machines.

Now, if the older machines are not perceived as an inherent part of the process, then the conclusion would be quite different. In this case the old machines are seen as something in the process being wrong and should be fixed or replaced. The resulting high degree of variability is not considered as an inherent part of the process, thus it is caused by special causes. Special causes often have their origin in single variables, making diagnosis easier (Gryna 2001). The older machines as a special cause in this example must be identified and eliminated. That is, to either fix or replace the old machines with new ones. As a result, one particular quality cause can be a common cause to process B, and the same cause can be a special cause to process A, all depending on how the normal system or process is defined.

Small is another popular term used to describe common causes. We admit that many common causes (e.g., background noises) are small. However, some other common causes such as the older machines are not small individually. Collectively, common causes generally account for about 80 to 95 percent of the observed variation in a process, which is not small at all. Now we clearly see when the existing definitions do not work in certain scenarios.

Overall, common causes can be identified and reduced only if better technology, process design, or training is provided (Collier and Evans 2013). In other words, common causes can be possibly identified with new technology or new process design. To give another example, in most service industries, customers might have to wait in line before being served and the waiting time is purely random and unavoidable. However, much of the waiting time can be avoided if the service process is redesigned (e.g., appointment system and other incentives are used) to ensure system synchronization. That means, under the new system, many of the influential common causes of the old system can be identified and avoided.

If a common cause to process B can be a special cause to process A, can SPC charts still detect that special cause for A?

A major objective of statistical process control is to quickly detect the occurrence of assignable causes of process shifts so that investigation of the process and corrective action may be undertaken before many nonconforming units are produced. The confusions associated with common and special causes can create further learning difficulties for SPC tools and beyond. Now we discuss what SPC charts can actually do. Since special causes are not part of the normal process, they affect the process enough to actually change its distribution pattern, which can be detected by SPC charts. For example, a mistake in programming the CNC machine, an operator error, or wear and tear of the

extrusion machine would be likely to change the process output distribution thus can be detected by SPC charts. When abnormality in SPC chart is found for a given process, it is almost certain that special causes are present hence the process is out of control (the exception is the so-called type I error). However, in theory, there could be some special causes which are relatively small, produced from external sources, and do not produce identifiable pattern change. Therefore, the SPC charts may not identify them and they can be better classified as common causes (but not an inherent part of the process). One needs to remember, if only SPC charts are used, common causes are indeed unidentifiable, unavoidable, and cannot be eliminated.

Now, suppose the older machine is the common cause for process B (2-sigma process), and it is the special cause for process A (4-sigma process). It is easily understandable that the SPC charts for process B will not identify the related old machine common causes, as we expected. Can SPC charts detect the same cause as a special cause for process A? The answer is definitely yes, in fact, since the old machines will consistently impact the process output distribution, SPC charts will detect this special cause in no time.

Does an in-control process need change or further improvement?

Typically, being in control only means the process is statistically stable without special causes. Since a significant portion of the variation is caused by common causes collectively, an in-control process does need further improvement in many cases. The objective of many process improvement projects is to "assign" changes in process behavior to causes and then to prevent them from recurring in the future (Cachon and Terwiesch 2013). Common causes are naturally part of an existing process, but that does not mean they cannot be identified or eliminated. In fact, six sigma methodologies like DOE can be effectively used to identify the cause(s) behind typical quality problems including common cause variations. As long as the cause can be assigned, this previously unknown common cause (most likely not background noises) can be defined and converted into a special cause if they reoccur in the new process.

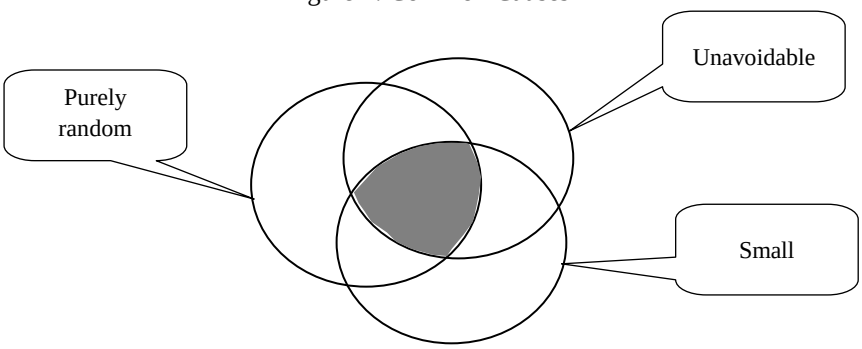
A common fault in the interpretation of process variations, seen everywhere, is to suppose that every event (defect, mistake, accident) is attributable to someone (operator or worker), or is related to some special cause which SPC tools can help solve. The fact is that most troubles with service and production lie in the system (Deming 1986). The faults of the system are common causes (Deming 1956). Further, the common causes are the responsibilities of the management. In fact, according to Deming, 94% of the troubles and possibilities for improvement belong to the system (responsibility of management), and 6% are special causes which are local fleeting events (employees are probably responsible for). People may formulate two sources of loss from confusion of special causes with common causes of variation. For example, ascribe a variation or a mistake to a special cause when in fact the cause belongs to the system (common causes), and ascribe a variation or a mistake to the system (common causes) when in fact the cause was special (individual's mistake). Therefore, over-adjustment and under-adjustment (never doing anything to try to find a special cause) are typical examples of the mistakes.

The action required to find and eliminate a special cause is totally different from the action required to improve the process and eliminate common causes (Deming 1986). Using SPC charts to eliminate special causes only allows bringing the process back to a stable status. It is the management's ultimate responsibility to eliminate common causes to improve the overall process performance, for instance, via process redesign or product upgrade (Meyer 1993). Lean Six Sigma is said to be one of the most successful methods in history for integrating known statistical methods into a novel initiative to reduce process variability (Hoerl and Snee 2010).

Are non-common causes actually special causes?

If a process is not in control, then it must be out of control. Does that mean all non-common causes must be special causes? It turns out that the traditional ways of classifying variation causes are not based on rocket science. Particularly, the definitions of common and special causes in the literature are not 100% mutually exclusive. For example, characteristics like small, unavoidable, and purely random, are used to define common causes. As such, in this example common causes are the intersection of all the related sets (gray area in Figure 1) in the following figure:

Figure 1: Common Causes



From Figure 1, it appears some purely random but avoidable causes do not belong to the common cause category. From the definition of special causes, they are not special causes as well since they cannot be clearly identified. As a result, non-common causes (meeting some common cause requirements but not all) are not necessarily special causes. This can create confusions in classroom environment. In particular, incorporating many restrictive properties in defining variation causes with no context explanation might produce imagination space for other causes belonging to neither common nor special causes. In order to support SPC use, non-common causes must be special causes for sure. We apparently need a much clearer approach to define and teach these extremely important terms.

Can we present variation causes in a clearer way?

While the line between common and special causes might be murky in many cases, SPC charts as a scientific tool can always provide a definite answer about process behavior (in or out of control). When we say a process only contains common causes we do not imply the common cause concept is still debatable. In particular, we argue that the definitions of common and special causes must be (1) consistent with what SPC charts can do; (2) clear and easy to comprehend to business students.

In theory what SPC does is to detect occasional abnormality which is not an original part of the process. All the underlying causes behind this abnormality are called special causes, including event-based operator error, procedure mistakes, tool wear, etc. Apparently they must be (1) significant enough to disrupt the process distribution so it can be detected by SPC; (2) the causes are event-based, meaning not an inherent part of the process. Everything else should be called common causes which include background noises, unknown system interactions, and other inherent variation causes (in theory, common causes can also include those event-based operator mistakes which do not produce detectable variations). Note some common causes (like background noises) are purely random, unavoidable, and unidentifiable. Other types of common causes may not necessarily possess all of these properties. When introducing them, more contextual information is needed to avoid much of the above said confusions.

In fact, the distinction between common and assignable causes is not a universal truth. It does depend on the degree of knowledge of the observer and a few other things (e.g., how the process is defined). We argue it would be a better approach to introduce in-control and out of control status and SPC concept first, then present definitions of common causes and special causes.

We further proposed to use a simple Excel based simulation excise to assist SPC teaching. The benefits of using computer simulation is the associated time efficiency, as reported in the literature, most of the in-class SPC excises take 40+ minutes. We formulate the following three processes where 20 samples are taken to construct SPC charts (we used P-chart for simplicity purpose):

- Process A is performing at 4 sigma level or any higher sigma level (with new machines).
- Process B operates at 2 sigma quality level or any lower sigma quality level (having older machines).
- Process C is basically a combination of A and B. Among 20 samples from C, 16 are produced by new machines and 4 are produced by older machines (the new machines are becoming old).

We use random number generator to simulate these three processes. Surely there are only common causes of variations present in processes A and B thus SPC will tell both of them are in control. For C, the result is quite different. If we assume that old machine as an inherent part of the process (common causes), the process is most likely in control (using its own control limits). The process is clearly out of control if we assume the older machine should not be part of the process, thus we use the control limits for A to judge if process is out of control. Here process C is an extensional version of process A and the older machines are considered as special causes. This exercise takes no more than 10 minutes to run, and can give students clearer picture about some of confusing distinctions between common and special causes.

CONCLUDING REMARKS

Common and special causes are among the most fundamental concepts to be taught in an operations management class. However, the way they are defined in most existing textbooks can potentially result in learning confusions. While useful to define some specific common causes, using multiple restrictive terms to define the general concept of common causes can create potential conflict and leaning difficulties. After reviewing many popular OM textbooks, we systematically analyze the potential learning issues, make the relevant clarifications, and propose a new way to present the concepts, including a simple time-saving simulation exercise. We hope this paper will shed some light on developing better approaches for teaching SPC in OM courses.

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Using Infographics as an Integrative Higher-Order Skill Development Assignment in Undergraduate Leadership Instruction

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ABSTRACT

In addition to the development of disciplinary competence, it is necessary for post-secondary students to develop the skills required for success as well. The addition of problem-based, project-centric, open-ended learning environments may enable the simultaneous development of not only the disciplinary competence but also the higher-order skills necessary for workplace success. This article explores the use of infographics in an undergraduate leadership course as a means to develop simultaneously this suite of competencies.

Keywords: 21st higher-order century skills, open-ended learning, information visualization,

INTRODUCTION

The Information Age has fundamentally redefined the nature of work at all levels (Spires, 2008). Tracing the evolution of skills necessary for success in the workplace, Allred, Snow, and Miles (1996) contrasted the dominance of technical competency, necessary in 20th century bureaucratic organizations, with the Information Age requirements of both technical and collaboration skills. There is however wide variety in the classification and categorization in these skills. Fleming (2008) indicated skills necessary for success in the 21st century workplace include teamwork, reasoning, technological, as well as employability skills, whereas Erickson (2010) noted compelling inquiry, collaboration, an appreciation for both complexity and diversity, as well as sharing the corporate identity skills should dominate. Further, Tapscott and Williams (2010) stated the ability to locate, assess, synthesize, and apply research in the organizational context were skills that led to enhanced organizational problem-solving, collaboration, and communication. Though there is debate over the exact taxonomic classification of these skills, and whether these skills are indeed new or not, there is less debate on the necessity of these skills as an element of workplace success (Tapscott, 2009). Salpeter (2008) stated:

> "students need to know more than core subjects. They need to know how to use their knowledge and skills – by thinking critically, applying knowledge to new situations, analyzing information, comprehending new ideas, communicating, collaborating, solving problems, and making decisions." (p. 1)

As a result, one of the key skills necessary for success in almost every sector of the workforce is the ability to locate, analyze, and apply information from wide variety of sources (Salpeter, 2008).

BLOOM'S TAXONOMY AND 21ST CENTURY SKILL DEVELOPMENT

Bloom (1956) noted the three domains of educational activities included cognitive, affective, and psychomotor. Within the cognitive dimension, Bloom indicated a range of six increasing educational objectives - knowledge, comprehension, application, analysis, synthesis, and evaluation - with each demonstrating a higher level of student critical thinking. Anderson and Krathwohl (2001) revised Bloom's original taxonomy and connected the cognitive processing dimensions - remembering, understanding, applying, analyzing, evaluating, and creating - with a corresponding knowledge dimension. These knowledge dimensions progress along an increasing continuum as well; factual, conceptual, procedural, and metacognitive knowledge. As a result, the cross-combination of these two dimensions leads to both a wide variety in the types of student activities necessary to address the dimensional combination, and disparity in the types of assignments that would produce the desired outcome.

In 21st century higher education therefore, Bloom's (1956) taxonomy may be useful in matching student activity with a targeted level of learning. During the course of instruction, students begin at the lower levels, acquiring information and performing activities such as listing, summarizing, classifying, and differentiating to master and demonstrate disciplinary competence. As they progress across the overlapping cognitive and knowledge dimensions, these activities increase in complexity and should next include predicting, integrating, assessing, and deconstructing. Finally, at the highest levels, student activities should focus on reflection, integrating, design, and creation. In

addition, "acknowledging that learners are self-directed and autonomous and that the teacher is the facilitator of learning rather than the presenter of content" may be seen as well as a component of contemporary post-secondary education (Henchke, 2005, p. 34). This view however presents a stark contrast to what Chan (2010) noted was the teacher-centric, dependent, and subject oriented nature of pedagogy. Today, there is detailed support in the literature for the "self-directed, problem-oriented, motivated, and independent" nature of adult learners and the application of andragogical principles to numerous disciplines, including management (Chan, 2010, p. 27).

Constructivist Epistemology and Skill Acquisition

Importantly, Chan (2010) stressed the need to "engage adult learners in … conducive learning environments" (p. 31). In this way, rather than passive, broadcast methods of instruction focused on content acquisition (Tapscott, 2009), discovery learning, which allows "learners to interact with materials, manipulate variables, explore phenomena, and attempt to apply principles," learning appeared to be a more "robust" approach to 21st century adult education (Alfieri, Brooks, Aldrich, and Tenenbaum, 2011, p. 1). Alfieri et al. noted a spectrum of techniques fall under the discovery learning umbrella, ranging from completely unassisted discovery practices, to discovery with varying degrees of assistance provided, and finally discovery achieved with direct instruction. Linking the constructivist perspective with discovery learning, Alfieri et al. (2011) found enhanced discovery to be most effective with adult learners, and concluded that through the use of hands-on activities and manipulation exercises, adult learners achieve the higher order objectives of Bloom's taxonomy.

Therefore, across the post-secondary instruction process, students need to progress though the lower level stages of learning to information acquisition. With the information acquired, students then need to be challenged through more integrative, interactive, engaged, and qualitative assignments. It is then incumbent on educators to find a way to not only understand how adult, post-secondary students learn best, and find the best way to present the material to them to facilitate that learning, but also to create assignments and activities that can help students internalize, personalize, and immediately apply what they have been presented. By rethinking not only the process but also the outcomes of assignments – simultaneously – it becomes possible to make coursework more individual, more meaningful, and in the end more effective to each individual student. This level of personalization is generally not seen in the mass higher education system, however, the possibilities seem enormous, in terms of both broadening the learning possible and in the creating learning situations (assignments and activities) where students can immediately apply they have learned.

FOCUSING ON THE DEVELOPMENT AND DEMONSTRATION OF HIGHER-ORDER SKILLS

The problem however is that, as students' progress along the increasingly higher-order taxonomic levels; it becomes harder to measure objectively the associated skills, such as reflection and integration (Silva, 2009). Nevertheless, Silva noted it is important not to separate the disciplinary content core from the acquisition of skills. Instead, content mastery and skill acquisition should be an integrated part of the entire education process and developed together. As a result, the creation of "authentic projects" may be seen as a means to achieve the goals of reflection, integration, design, and creation at the highest levels of cross-combination in the cognitive and knowledge dimensions of learning (Silva, 2009, p.1). Salpeter (2008) concurred, noting there is value in creating "rich, multi-disciplinary, technology-infused learning" (p. 3). In this way, it becomes possible to create discipline-specific assignments, where students can not only demonstrate content acquisition but also the addition of the skills necessary for success as part of their professional socialization process (Buchanan, 2006,).

This combined focus on content and skill acquisition may also help to address concerns regarding the increasing instances of plagiarism in college classrooms. Park (2003) indicated that the nature of many assignments may be partially to blame for the increase, since certain assignment types make it easier for students to plagiarize. In addition, Park stated there are "multiple and contingent motives [for] plagiarism" among students, such as time and efficiency gains, personal attitudes toward the dishonesty associated with plagiarizing, as well as student attitudes toward the teacher, the class, the temptation, and opportunities to plagiarize (p. 479). Ercegovac and Richardson (2004) concurred, and indicated that competitive classrooms, pressure for 'good' grades, and too many homework assignments may all contribute to increasing student plagiarism. Student perceptions of these variables can either increase, or decrease, a student's motivation to plagiarize. Therefore, the use of assignments that center on not only the higher levels of Bloom's taxonomy, but that also engage students at the metacognitive knowledge dimension, may serve to diminish both a student's motivation and opportunity to plagiarize.

Summative assessments review, after instruction, what has been learned (Swearingen, 2002). Activities and assignments such as weekly quizzes, applicative homework assignments such as case studies, and comprehensive projects and exams are all examples of summative assessments that focus on what a student has (or has not) learned. Formative assessments, on the other hand, dynamically align instruction techniques and assignments during the learning process (Swearingen, 2002). In this way, formative assignments assess not what has been learned, but rather what is being learned (or not), while the learning takes place. From a student's perspective, formative assessments allow a student to reflect, apply the content learned, determine why new content is important, and ascertain how the new knowledge connects with what they already know. From an instructor's perspective, formative assignments create an opportunity for feedback, on not only the content acquisition but also its interpretation and application. This process therefore reflects Zull's (2006) basic brain patterning and learning process, the steps of which include exposing, reflecting, and applying content. In addition, properly constructed formative assessments can create a guided inquiry process through the content acquisition process. Connecting this type of formative assignment and assessment then with summative assignments and assessments, students' course work may culminate in the activation of Bloom's higher order skills including reflection, integration, internalization, and personalization.

CREATING AN ENVIRONMENT TO DEVELOP AND DEMONSTRATE HIGHER-ORDER SKILLS

Problem and Project-based Learning

Combining elements of problem-based learning and project-based learning, in open-ended learning environment (OELE), may facilitate this type of content and skill acquisition. Bell (2010) defined project-based learning as a student-inquiry driven process, where students' questions initiate the learning process and instructors facilitate guided research to answer that question. Bell (2010) additionally indicated project-based learning may result in "greater understanding of a topic, deeper learning, higher-level reading, and increased motivation to learn" (p. 39). Further, Savin-Baden (2000) indicated problem-based learning organizes content around a problem, rather than a specific discipline-based topic. In problem-based learning, students focus on addressing the problem, discerning the information that applies, and deciding how that information applies, rather than searching for a predetermined 'right' answer. Savin-Baden (2000) also noted literature on problem-based learning focuses on its use as a means to develop student-reasoning skills, allowing learning to occur in a student-relevant context, ensuring an education-workplace connection, and promoting self-directed enquiry. The current demands for the development Information Age skills allows problem-based learning to remain relevant, as a means to not only promote skill development but also to "enhance the knowledge creation capacity of individual[s]" (Savin-Baden, 2000, p. 20). The creation therefore of problem-based, project-centric formative and summative assignments may be seen as a vehicle through which students can optimally acquire, engage, and refine the knowledge and skills necessary for workplace success.

Open-Ended Learning Environments

Land (2000) defined an open-ended learning environment (OELE) as a "technology-based environment that follow[s] constructivist assumptions" and allows for both "higher-order thinking and problem solving" (p. 61). In an OELE, Land noted technology supports both "unique learning goals and knowledge construction … [such that] complex concepts can be represented, manipulated, and explored" (p. 61). As a result, an OELE may be seen to echo the composition of a discovery-based, guided learning environment, with both focused on not only a student's "voluntary cognitive engagement," but support as well "thinking-intensive interactions with limited external direction" (Land, 2000, p. 62). In this way, Land stated students become an "active constructor of meaning … [and] through observation, reflection, and experimentation, understanding evolves in response to interactions that continually confirm, challenge, or extend ongoing theories and beliefs" (p. 62).

One key advantage of an OELE is that technology-based visualization tools may be used to create artifacts that depict students' understanding. Land (2000) noted when student are able to not only explore, but also exploit, an information-rich environment, additional modes of inquiry become possible. In addition, critical thinking skill development may allow students to formulate questions, identify relevant sources, and discern the necessary information. Land (2000) however cautioned that a student's constructivist epistemological orientation is an essential element of OELE. Those students who are either used to either being told what they should learn, and therefore know, or that have been conditioned to seek the 'right' answer to every problem may be frustrated in an OELE environment.

Information Visualization

Salpeter indicated there is value in finding a way for student to "create presentations to demonstrate their learning" (p. 3). In this way, the design creation process includes perceptual problem solving, which Inchauste (2010) defined as "forcing the mind to try and figure out, or imagine, what the objects look like" (p. 5). According to Inchauste, the challenge associated with creating a design may not only be motivating but also pleasurable to the designer. In addition, the information visualization process may be seen to complement the design process. Card, Mackinlay, and Shneiderman (1999) stated the purpose of information visualization is "insight, not pictures," such that cognitive abilities and "the acquisition and use of knowledge" is expanded (p. 6).

Importantly, Card et al. differentiated scientific visualization, or the representation of physical data, with information visualization, whose aim is the representation of abstract, non-physical data. The information visualization process is designed to move "from information foraging to sense making … [which] requires building schema or descriptions into which many pieces if information fit" (Card et al., 1999, p. 580). This is significant since Pope (2013) noted, where organizations in the 21st century "are awash in data," only approximately 10% of this data is structured, numerical data (p. 1). The remaining 90% of data to be assessed is unstructured, the analysis of which requires the detection of "patterns, sentiments and relationships" (Pope, 2013, p. 2). Choy, Chawla, and Whitman (2011) concurred, noting where a picture is worth a thousand words, the data visualization process creates an opportunity to gain insight from, and discern the relationships between, data points. Choy et al. also stated the visualization of 'big data' requires visualizer to be aware of the data's volume, variety, and velocity. In an organizational setting, the volumes, or the amount of data to be analyzed, as well as the velocity, or the speed at which data changes, are important considerations. In an educational setting, however, data variety, which deals with the structured or unstructured nature of the data, may be seen as an important consideration. Semi-structured and unstructured data present unique challenges and therefore require different visualization techniques.

AN UNDERGRADUATE LEADERSHIP ASSIGNMENT TO DEVELOP AND DEMONSTRATE HIGHER-ORDER SKILLS

Hay and Hodgkinson (2005) stated the dominant conceptualizations of leadership have made its instruction difficult in the college classroom. They argue that the "systems-control" viewpoint in leadership education has not been successful in equipping students with the necessary knowledge and skills for success in the workplace. Rather, a "process-relational" view of leadership moves toward a "de-centered classroom where the student and teacher jointly construct knowledge," without seeking a singular, reductionist answer (Hay & Hodgkinson, 2005, p. 156). In this light, the use of problem-based, project-centric formative and summative assignments in an undergraduate leadership class may allow students to not only acquire the necessary discipline-specific content, but also develop the skills that ultimately lead to career success.

Comprehensive Leader Infographic Assignment

At Walsh College, the institutional vision focuses on student mastery of both theory and practice. With that goal in mind, the undergraduate leadership course encourages students to master Bloom's lower-order skills, understanding, analyzing, and applying relevant leadership theory. An additional and overt goal of the course is a demonstration of internalized metacognitive leadership knowledge. The use of both self-assessment exercises and examination questions asking students to detail the personal leadership lessons they have learned studying the assigned leaders are used to demonstrate that mastery.

To further these goals, a connected formative-to-summative assignment was created in the class. At the beginning of the term, students were instructed to select a leader they were interested in profiling. Using the leader selected, each week student were given a list of topic-specific questions to research and answer, applying the assigned weekly readings and concepts. Across the entire term, this research and writing created series of formative assignments that resulted in a comprehensive written summary of the selected leader's demonstration of the concepts and theories from the text. This process also created a series of formative assessments, where students were given feedback on their application of the current week's content to the leader. In addition, this feedback process allowed the instructor to draw student's attention to elements of the weekly writing that were not in synch with the previous week's, or to note connections between the prior week's work that may have been overlooked.

At the end of the term, the content of these formative writing assignments then became the foundation for a course-ending summative assignment. Students were asked to create an infographic summarizing, in one pictorial representation, the leader's personality, interactional capacity, and strategic leadership characteristics (Appendix A). Instructions for the final project indicated this was to be a summative assessment, specifically designed to bring the weekly work together in a comprehensive way. Students who may have been unfamiliar with the concept of an infographic were given a description of the technique, a visual example (in the context of the assignment), as well as additional resources on the creation of infographics. In addition, the instructions detailed that the infographic was not intended to merely replicate all of the weekly work but was specifically intended to seek patterns, connections, and relationships across that body of written work. The rubric provided also directed students toward areas of focus.

This assignment was also created to include a project evaluation. Upon completion and submission of the infographic assignment, students were asked to provide their reflections on the assignment's process, content, and value. The content of this evaluation survey provided critical feedback the instructor was able to use to refine and improve the assignment's instruction clarity. More importantly, this reflective evaluation allowed students one additional opportunity to reflect on the value of the infographic creation process.

Evaluation of the Students' Perceptions of the Assignment and its Value

Heer and Shneiderman (2013) noted a benefit of the information visualization process is the ability to make sense of data by asking questions, detecting patterns, and uncovering errors. This type of analysis "requires contextualized human judgments," and in the context of the infographic assignment, students first needed to activate their perceptual skills, and determine patters and relationships between the researched weekly data elements (Heer & Shneiderman, 2013, p.1). Students then needed to map those elements visually as they create the infographic in an "iterative process of view creation, exploration, and refinement" (Heer & Shneiderman, 2013, p.1). The overall process therefore required student to selectively visualizing how the data would be depicted, filter in the relevant data elements (and filter out those that were unrelated), sort and order the information to determine patterns and relationships (or contrasting points), and deriving new data in the form of summary categories or descriptions. As a result, the creation of the summative leader infographic echoed Tufte's (1997) statement, "when principles of design replicate principles of thought, the act of arranging information becomes an act of insight" (p. 9).

Student perceptions of this assignment supported not only the value of information visualization process at the heart of the infographic assignment, but also the enhancement of higher-order skills. When asked what they liked best about the leader infographic assignments, student's responses culminated in three themes; the benefits of being able to more clearly visualize the concepts and connections, being able to be creative, and learning something new. Student feedback results are depicted in Table 1.

Table 1: Student responses to what they liked best about the infographic assignment

Theme	Student Statements
Being visualize/see the concepts and connections	I know for me I can understand a lot better if things are visual, so this really stands out for me. Seeing the connections of leadership traits visually. Being able to pull all of the week's together and see the characteristics all in one project. The amalgamation of all of the material that we assembled into a single visual assembly drove a need to truly understand the leader at greater depth in order to effectively communicate the intended message. I feel that using the same leader throughout allowed a consistent view of an individual along with how the concepts were, or were not demonstrated by that leader. I think there is significant value in understanding both the good and the bad examples and using the same leader throughout allowed a view into various aspects of leadership and how our chosen leader related to the topics that we were studying each week. Bringing together all that we learned this semester within one picture was really neat, it was almost as though our leaders were in a sense "coming to life" before our eyes.

Table 1 Continued

Theme	Student Statements
Being able to be creative	It allowed me to be creative and use technology to express key findings and my own conclusions. Helped bring together what I learned about my leader through the use of pictures. … [it] allowed us more creative than an essay, and summarizing all of the info on one slide made it more challenging that a regular PowerPoint presentation. It let us be creative. We had to decide how to construct and organize our infographic. It was fun as well as hard because you had to be sure to get the correct information. Doing hands-on work is more fun than doing book work. The assignment overall was a great experience. The best part about the infographic assignment was the challenge of trying to take weeks of 'text' info and trying to materialize it into graphics.
Learning something new	That not only was I able to pull all of my information together into an effective presentation, I was able to learn an entirely new concept as well. I learned a new way to present data …. Having a alternative [sic] from the normal essay. It was fun The ability to summarize all of what we learned about our leader in a new method other than a traditional essay or PowerPoint. The best thing was that it was a totally new idea for me, and I had an opportunity to research and create something for the first time.

When asked to detail the most significant challenges of the assignment, student's responses indicated problems executing the higher-order thinking and processing skills required in the assignment. Several students stated difficulty in not only selecting the relevant data to be included in the infographic, but also in synthesizing the data they did select into a comprehensive and coherent single image. For other students, the newness of the technology to create an infographic was their most significant challenge. Most interestingly, the response of one student echoed Land's (2000) cautionary note on student's epistemological orientations, with the student failing to see the ability to apply data visualization techniques to non-physical data. Table 2 summarizes student answers to the question, "I think the worst thing about the infographic assignment was …".

Table 2: Student responses to what they thought was the worst thing about the infographic assignment

Theme	Student Statements
Selecting and Synthesizing data to create coherent end product	It was hard for me to decide how much information to put, and what exactly was the most important. Too much information and not enough space! How difficult it was trying to get all of the graphics to fit into one space in an organized and final manner. Trying to display months' worth of info on one graphic image was kind of overwhelming at first. Trying to decide what information just wasn't necessary to be included. I found it very hard to narrow down 40+ pages of assignment into a single picture. It was hard to get it started because I was unsure on how to approach it.
Technical issues with new program and technology	I am not very tech savvy, and it was challenging at first. Hard to complete online compared to a poster board in a classroom setting That the website lost the first one I created. … using a very unfamiliar website That I have never created a infographic before, and was rather intimidated by the programs that were provided to us.
Not relevant for 'non-technical' application	An infographic is designed to creatively present statistical data in an interesting day. I do not feel that it fit this class well because they are not meant for summarizing leadership theories.

Students were also asked to comment on their perceptions of the term-long, formative-to-summative assignment process. In this assignment, students had been asked to select a leader at the beginning of the term and profile that individual consistently throughout the 11 week term. The majority of students believed the consistency of the weekly assignments, accumulating of a larger body of data evidence and synthesizing all of the course concepts into one, holistic picture, was beneficial. For others, the formative weekly assignments became repetitive. They noted the use of two or more leaders, and corresponding infographic assignments, would have been more beneficial. Table 3 summarizes students statements regarding the weekly work focused on the same leader across the entire term.

Table 3: Student responses regarding the use of a singular leader the infographic assignment

Theme	Student Statements
Selecting only one leader was a good idea because ….	… because I received a comprehensive picture at the end. Great! I think using the same leader was better than changing leaders each week. I really enjoyed pulling it all together at the end and it was something different which made it more interesting. A good idea because we got to put all that we have researched on our leader and any conclusions that we could draw on our leader in one picture. I honestly did not think that there was going to be way to get all that I needed to say about my leader onto one picture, but I did! Great. I was able to focus on one leader all semester and at the end I felt I had a very good understanding of him and his leadership style. Studying multiple leaders would be less impactful. Great because it made it easier because I learned so much about my leader [that] it made doing the infographic easier. Great because I got a comprehensive picture that put everything together and made all that hard work pay off. It also allowed an element of creativity to it.
Selecting only one leader was a bad idea because ….	I think breaking up the semester into two or three leaders and summarizing each one in something similar to an infographic would be better. A good idea to start with, but it got boring toward the end. I think it would have been more beneficial to focus on one leader to the mid-term and then another up to the final. … it did get a little repetitive.

Finally, students were asked to detail their perceptions of the infographic assignment as a course-ending summative assessment. Students perceived the production of an infographic to be a fun, creative, unique assignment. Several students believed the infographic assignment to be less work, and less stressful, than the preparation of a large, comprehensive paper or PowerPoint presentation. Table 4 summarizes student statements in answer to the question, "Of all of the 'final assignments' in the classes I have had so far, I think this one was …".

Theme	Student Statements
Fun	This assignment was the most fun, because I really enjoyed making the infographic. … I think it was probably my favorite final project thus far. I think this assignment was very fun because I got to be creative. It was the most fun and interesting and I think it's a great way to end a class after doing so much research and writing (typing). The best. I enjoyed it very much and it was fun as well.
Creative	I think this assignment was very fun because I got to be creative. One of the best. I enjoyed not typing a huge paper, while my creative side flourished.
Less work/easier	It was much less work than an essay or PowerPoint and it was more fun. I still was able to show that I understood the concepts and summarized my leader. It was a nice change of pace from most final assignments. This one was the least stressful in terms of what needed to be accomplished. I am used to

	having to put together papers, and this infographic was much easier and less intimidating.
Unique	I have never done it before and it was a fun way to portray your leader with the information that you have learned over the semester. Unique. I've never had to do this for a final assignment By far the best. I've never done anything like this before and enjoyed every minute of it.

Evaluation of the Students' Work Product

Though students enjoyed the project, and there was clear support for the engagement of Bloom's higher-order skills, including reflection, integration, internalization, and personalization, many students struggled to meet the overall objectives of the assignment. Some of that difficulty was the result of poorer performance on the weekly formative, concept application, homework assignments. Those student's whose weekly homework write-ups reflected either a superficial application of the concepts to the leader, or those whose research on the leader was not sufficient to fully answer the assigned questions, also performed poorly on the final infographic assignment. Several students struggled to meet adequately all of the assignment requirements, submitting incomplete or partially complete assignments. These results may, or may not, be due to the assignment requirements as occasionally students' end of the term time management, workload prioritization, or other external issues play a role in poorer final project performance. Worth noting however, is the fact that approximately one third of the class received a higher grade on their final summative infographic than their average weekly homework grade.

DISCUSSION AND CONCLUSIONS

The *Partnership for 21st Century Skills* noted the skills necessary for success include creativity, entrepreneurial and critical thinking, the ability to solve complex, multidisciplinary, open-ended problems, the ability to communicate and collaborate, and the innovative use of knowledge and information. The use of problem-based, project-centric assignments, in an open-ended learning environment, may allow students not only engage but also enhance these skills. In the specific case of an undergraduate leadership course, the use of an infographic, as course-ending assignment, holds the potential to not only help students to visualize concepts that may otherwise remain too theoretical, but also works toward truly synthesizing those concepts into a coherent and comprehensive body of knowledge.

A difficulty in meeting this objective however may be the current structures and processes that dominate higher education. The novelty of a course-ending infographic assignment speaks to the need for additional assignments, in a variety of forms and across a variety of courses, to help students strengthen information visualization skills. In addition, where there are clear benefits in the selection of a single term-long, formative-to-summative assignment, appropriately addressing the content of a course, the use of multiple infographic assignments, each possibly focused on the accurate and appropriate depiction of a cluster of concepts, may be a more beneficial approach. With the ability to build not only increasing disciplinary competence, but also the ability to refine their data visualization and presentation skills, course-specific student learning outcomes may be increased. Finally, the integration of this type of assignment, across an entire curriculum, may create an open-ended learning environment institution-wide. As a result, it becomes possible to not only increase student learning outcomes at an institutional level, but also to ensure the simultaneous integration of students' disciplinary-content and skill acquisition across their entire learning experience. A goal therefore for contemporary higher education may be the fulfillment of Land's (2000) statement;

> "Learning in an open environment often involves working on multiple activities, analyzing diverse perspectives and resources, testing ideas through experimentation, and integrating various components into a coherent whole. … in essence, thinking, and doing are complementary, as reflection and action continually inform each other" (p. 74).

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Appendix A: Comprehensive Leader Infographic Assignment Instructions

As a way to both wrap things up at the end of the term, and bring everything together all you have learned about your leader in a comprehensive and integrated way, for the 'final project' each of you present all that you have learned about your leader in a high-level "infographic".

What is an infographic you ask ….

An infographic is a way to represent data, distilled up to a very high level - clearly and quickly ... and without being too wordy! The goal here in our class is to take all of the research, information, data - but most importantly the knowledge - you have amassed on your leader and present it ... without writing a 20 page paper or creating 45 PowerPoint slides! (and I am guessing you all like the sounds of that). Bottom line – an infographic is **O N E (1) picture** that represents **ALL** of the key data in one place.

So - here's the scoop ...

Using computer-assisted technology (because drawing is too hard!) **prepare ONE infographic on your leader**. This can be done in PowerPoint, Word, or one of the free infographic sites on the web - Infogr.am or Easel.ly. This infographic should not merely "dump" all that you have learned about your leader into a graphic form, but instead should present **high-level conclusions** on what you found throughout all of your research. Specifically, your infographic should address (in whatever format you believe to be the best based on the leader you have chosen and researched this term) each of the following areas - using any/all formats that best convey a sense of who your leader really is:

- Personality characteristics, traits, and behaviors that contribute to their effectiveness
- Characteristics of the leader's mind, heart, and courage
- Connections to/ways in which the leader connects with their followers
- How the leader has strategically led the company during their tenure

As you can see these are VERY broad categories to address - and in ONE graphic you will have to look ACROSS all the data you have accumulated, looking for patterns and trends in their behaviors, thoughts and actions. What you will not do it to go back to each weekly assignment and 'load in' the answers to each question from every week. As you can see as well, this is not a highly structured assignment - which can be seen as "good news" or "bad news," depending on your perspective.

As you have all chosen a wide variety of leaders, with a wide variety of experiences, in a wide variety of organizations - and with greater and possibly lesser success - there literally is no "one right way" to present the data. The "right way" is the way that best demonstrates **who your leader is, how they approach their work as a leader, and how effective they are/have been and why?**

This is also a **reflective** assignment. Again, the goal is NOT to merely transfer the answers to the weekly homework questions into graphical format, but rather to truly reflect on who your leader is, what makes them 'tick' as a person and a leader, and how their influence has been felt as a result.

Requirement	**Points**
High level comprehensive assessment	
Personality characteristics, traits, and behaviors - 10 points.	
Characteristics of the leader's mind, heart, and courage - 10 points	
Connections to/ways in which the leader connects with their followers - 20 points	
How the leader has strategically led the company during their tenure - 10 points	50
Informative value of the Infographic	5
Creativity	5
Comprehensive Reference Page - In APA format	10
Project Evaluation	5
Total Points	75

Mapping Bridges to Creative Collaboration

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ABSTRACT

The term "creative collaboration" has existed for over sixty years in the psychology domain, published as early as Alex F. Osborn's book *Applied Imagination* (1953). Osborn's book was designed to "present the principles and procedures of creative thinking," including a discussion of "the element of luck in creative conquests; the effect of emotional drives on ideation; creative collaboration by teams; and ways by which creativity can be developed." Today "creative collaboration" is catalyzing entrepreneurship within organizations as "a way to make something bigger happen than can be accomplished solely through the assets you command and control" (Lowitt, 2013-2014, p 8). This article proposes one way to map "bridges" to creative collaboration in organizations by conceptually relating a sustainable community-builder model to creatively collaborative "coalitions for change."

Keywords: creative collaboration, applied imagination, ideation, coalitions for change, cognitive diversity

MAPPING BRIDGES TO CREATIVE COLLABORATION

Denning (2012) proposed that diversity is "vital for innovation." Steven Johnson (2010) researched how individuals developed creative, innovative ideas by asking the question, "What are the spaces that have historically led to unusual rates of creativity and innovation?" After studying patterns of creativity and innovation, Johnson reported that powerful collaboration requires a space for individual ideas to merge and collectively incubate beyond their original isolated notions. Conceptually, this space can be imagined as a "bridge" from individual idea creation to the collective creative capabilities of an organization.

This notion of a "bridge" for ideas is critical to operationalizing a culture of creative collaboration. The aha! Process, Inc. group created a "Resource Builder Model" (2014) that mapped the components to creating a sustainable community. The group's model was designed to guide all community stakeholders towards achieving a thriving social ecosystem where poverty may be overcome, called "Bridges out of Poverty" (Payne, DeVol, & Smith, 2006). The structural elements that define the "bridge" out of poverty are "financial, emotional, cognitive, spiritual, physical, relational, language, and support system" characteristics. The mortar that holds the bridge's structural elements together is a combination of the "knowledge of hidden rules of different groups, integrity and trust, and motivation and persistence."

The structural architecture of Payne et al.'s "bridge" out of poverty conceptually relates to the components necessary for creating a "bridge" for diverse groups of individuals to creatively collaborate and innovate. Denning summarizes four benefits of diversity in creative collaboration and innovation. First, a diverse group of individuals expands a two-dimensional problem into a multi-dimensional opportunity based on a variety of perspectives. Different mindsets provide varying perceptions on the relationships between problems and opportunities. Second, diversity opens up interpretations beyond like-minded reasoning. Individuals allocate significance to experiences based on their backgrounds, lifestyles, and perception of the ordinary. Increasing the number and kind of experiences found in diverse groups allows varying levels of significance to be attributed to opportunities and ideas. Third, diverse groups are made up of individuals that conduct ideation and create ideas uniquely through processes of speculative idea formulation and selection. These processes can create vast differences in approaches to creativity and innovation. Fourth, diverse groups understand the variables of predictive outcomes based on their ability to relate concepts with choices. Expanding the number of individuals with varying perspectives on choice and behavior increases the quantity of ideas available for any given opportunity.

BUILDING BRIDGES TO CREATIVELY COLLABORATIVE COALITIONS OF CHANGE

According to Rivenburgh, there are "seven ways collaboration builds greater resiliency" (2013-2014, p 12). The goal of this resiliency is to "build coalitions for change" in "the face of change." In order for "coalitions for change" to operate effectively, an organization must "become vulnerable to build trust; engage employees at all levels at all times; seek cognitive diversity; engage the head and the heart; build relationships across boundaries," possess a collective focus, and "make collaboration part of the culture." These seven principles are conceptually similar to

aha! Process, Inc.'s "Resource Builder Model" attributes of: integrity, trust, and emotional engagement; cognitive diversity, language, and the knowledge of the hidden rules of different groups; spiritual and physical influence on the creative process; collaborative support systems and relationships; the currency of collaborative creativity; and motivation and persistence. Operationalizing the seven attributes or "steps" from either Rivenburgh's "coalitions of change" or the "Resource Builder Model" is a means of constructing a "bridge" to creative collaboration in an organization; the steps and their role in creative collaboration are described below.

Integrity and trust are the foundations of innovative and collaborative cultures. Solis (2011) researched the importance of integrity and trust in innovation and found that "more than 72% of respondents rated 'trust issues' as a major obstacle to the free flow of intellectual capital at their organizations." Creating "trust rich" organizations that are capable of innovation provides benefits. Collective trust "drives sharing" among "more diverse actors" that contribute to open source innovation; trust also increases the speed and probability of "collaborative efforts to solve problems in novel ways." With integrity and trust, faith in the collective group creates emotional "connection, affection, curiosity, engagement, peacefulness, joy" that "manifest the behaviors of innovation teams" (New & Improved, 2009).

Cognitive development and creativity affect an individual's ability to express ideas through language, and to engage in creative collaboration. Schiering (2012) noted that "thoughts, ideas, opinions, judgments and feelings which impact our lives on a daily basis… influence our cognitive development and creativity." Paulus and Brown's research (2007) found that "the brainstorming performance of groups is often hindered by various social and cognitive influences, but under the appropriate conditions, group idea exchange can be quite effective." Language is essential to expressing thoughts, identifying meaning, and synthesizing ideas. "We rely on language to convey meaning, and if we don't have a shared understanding, it's harder to work together and collaborate creatively" (Dugan, 2014). Dugan suggests that each discipline's "robust language of its own" designed "for efficient communication amongst peers within the field" can inhibit collaboration with "people from other disciplines" and cognitive abilities. "Knowledge of the mindset and hidden rules… leads to an understanding of others and ourselves" (DeVol, 2004). This knowledge can lead to an understanding of how individuals and diverse groups recognize, relate to, and absorb ideas; it can also lead to insight into how they process thoughts and transfer ideas to applications and opportunities.

According to Fraley (2011), "innovation has a spiritual component" that requires an acknowledgement of "creativity and its connection to the soul." The implication is that each individual has an innate creative ability, and collective collaboration exponentially magnifies this "direct connection between the human spirit, the act of creation, and the final product." This perspective suggests that each individual has the potential to add value to ideas and innovative platforms for creativity. Baumann and Boutellier (2011) report that "physical activity influences creativity and thus innovation." The authors strongly suggest that physical environments "improve the behavior of activity" and "learning conditions." One approach to creating active learning environments in which creative potential emerges is to design activities based on the application of the five stages of adult learning (Haines Centre for Strategic Management, 1988). These stages are: experiencing idea-creating activities; sharing observations during the idea creation process; discussing patterns and dynamics of idea creation and collaboration; generalizing opportunities based on the idea creation process; and planning to optimize the ideas created from group collaboration into opportunities worth pursuing.

Support systems are essential for creating network-based collective collaboration. Frieb (2010) defines "creativity support" systems that are "determined by rules, activities, and constraints," such as brainstorming and mindmapping techniques. Brainstorming as a creativity support system requires that "criticism is ruled out," that "quantity goes before quality," and that idea creators "combine and expand existing ideas." Support systems provide structure in the frequently unstructured process of creative collaboration. Relationships are one type of support system, and are critical to facilitating innovation. Patmore, Whittaker, Watkins, & Hessey (2009) acknowledged two primary questions innovative companies should ask in managing creativity and innovation: "How can we release the creative talent of our people?" and "How can we move ideas through our organizations efficiently and bring them to the marketplace quickly?" The answer to these questions requires strong relationships between "marketing, product development, technology foresight, knowledge exchange, project execution, and talent management."

The financial attribute relates to the currency of ideas. For innovators, ideas are the currency necessary to realize market opportunities. According to the Financial Brand (2014), "One of the perils of working in a single vertical

industry is stale, repetitious thinking." One of the strategies the Financial Brand recommends is to "maintain a creative warehouse" from which idea "fusion or evolution" may be facilitated by collective, creative collaboration. This "creative warehouse" is a conceptual reserve of future revenue-generating ideas that can only be realized through open source collaboration.

Motivation and persistence drives the process behind creative collaboration on both an individual and group level. Chertudi (2013) suggests that innovators reverse-engineer ideas and products to understand their innovative potential; they "innovate-up" from daily tasks and behaviors to make the ordinary extraordinary; and they prototype everything to persistently test ideas. Motivation and persistence energize the search for innovation through creative collaboration. These attributes also spark forward-motion through success and failure, to learn and grow to the next level of innovative capability; in a sense, they form a layer of collective energy greater than any one individual could provide.

CONCLUSION

Rivenburgh's "seven steps to collaborative resiliency" are conceptually similar to the attributes of the "Resource Builder Model" by the aha! Process, Inc. group. Organizational designers who are interested in creating environments in which the best and brightest ideas may be created, nurtured, harvested, and marketed are advised to construct "bridges" to creative collaboration. In an age of open source innovation and predictive analytics, the imperative to change is a collaborative one.

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Comparing Different Testing Formats for Graduate Student Performance on Computer-Managed Homework versus In-Class Performance

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ABSTRACT

In an operations management course, results comparing graduate student performance on computer-managed homework versus in-class testing formats are significantly different. Graduates perform better on in-class scaffolded questions than open-ended questions. Moderate correlation between computer homework performance and scaffolded in-class testing exists; however, very weak correlation between online homework and open or partially-open question performance exists. Therefore, results highlight the different levels of student learning demonstrated through computer-managed homework and performance differences by testing format. Results have implications for computer-managed homework designers and instructors.

Keywords: Computer-managed homework, performance

LITERATURE REVIEW

Today's educational environment is transitioning toward inclusion of more computerized technology into the classroom. Over 6.1 million students took at least one online course during the fall 2010 term (Allen & Seaman, 2011). Even traditional education, regarded as face-to-face (FTF) instructional delivery using paper-and-pencil assessments, continues to transition to inclusion of computerized activities. "Virtual' educational elements, such as computerized homework management systems, exist in FTF, blended, hybrid and online courses. As education continues to add evolving technology into its delivery methods, instructors need to evaluate the relevance of the various assessment activities used to evaluate student performance and enhance the learning environment. Techniques may include computerized homework, quizzes, exams, discussion board contributions, case study evaluation, individual or group projects, and other activities. Academic administrators believe that learning outcomes through online education are the same or superior to those in traditional FTF classrooms (Allen & Seaman, 2013). However, critics argue that due to intrinsic differences, online education does not replicate the learning that occurs in the traditional classroom (Bejerano, 2008). Correctly or incorrectly, educators assume that whatever information technology is implemented in a classroom, it contributes to student learning (Peng, 2009).

With respect to this research, homework's value to student's learning is tested. Instructors believe homework improves student's abilities, knowledge and material retention, and educators assign homework to engage the student in the activity and encourage the student to learn (Rayburn & Rayburn, 1999). Studies to evaluate the value of homework to students' learning are mixed. Positive relationships between homework and performance exist in an accounting course (Rayburn & Rayburn, 1999), and a finance course (Eskew & Faley, 1988). However, no relationship exists in an introductory operations management class which concluded that required homework is not significantly related to performance on a multiple choice exam (Peters, Kethley & Bullington, 2002). This prompts the question regarding other testing formats and their associated learning. Is homework related to testing measures? Does student performance vary by testing format?

Similarly, one needs to question the value of online ancillary materials, such as online homework, to student performance. Empirical research indicates that results for online homework are also mixed (Smolira, 2008). Positive results linking online homework systems to student performance exist in a finance course (Biktimirov & Klassen, 2008) and chemistry course (Arasasingham, Taagepera, Potter, Martorell, & Lonjers, 2005; Arasasingham, Martorell, & McIntire, 2011). Negative or indifferent results exist in several studies (Anstine & Skidmore, 2005; Bonham, Beichner & Deardorff, 2001; Bonham, S., Deardorff, D. and Beichner, 2003; Cole & Todd, 2003; Daymont & Blaue, 2008; Horspool & Lange, 2012; Topper, 2007). Others note weak correlations between online homework and student performance on examinations (Fisher & Holme, 2000; Chamala, Ciochina, Grossman, Finkel, Kannan, & Ramachandran, 2006). As for student overall course success, results are again mixed. One study found an insignificant relationship between web-based homework for undergraduate business statistics and overall performance (Palocsay & Stevens, 2008). Yet another study found student performance in a math course to be significantly better when using computer-generated math homework versus traditional methods (Kodippili &

Senaratne, 2008). In a comparative study between four instructors using the same online homework system, only one instructor noted student improvements in exam performance through online homework while three others did not detect any significant gain (Dufresne, Mestre, Hart & Rath, 2002). In short, there is still a lack of consensus regarding the effectiveness of online homework which highlights the need for further investigation (Arasasingham et al., 2011). Specific to this research, is the use of computer-managed homework related to in-class student performance?

Online homework offers several benefits to the learning environment over traditional paper-and-pencil methods. These benefits include: immediate feedback (Kulik & Kulik, 1986), algorithmic versus static problems which may reduce cheating (Smolira, 2008), repetition, early feedback on student progress, requires less time for the instructor to grade, and encourages the students to think and understand the material through new and different problems (Arasasingham et al., 2011). Students appreciate homework when it is easy to use, carefully planned, integrated seamlessly with course material, and supported by the instructors (Arasasingham et al., 2011). From an instructor perspective, online homework keeps the class on task, tracks progress and allows student to work at their own pace (Arasasingham et al., 2011). Some Web-systems allow instructors to track individual student progress and pinpoint exactly where student difficulties lie (Mendicino, Razzaq & Heffernan, 2009). However, other instructors may find online instruction too time-intensive, relationally unrewarding due to the continual e-monitoring throughout the course, and feel a loss of the relational interactions with students (Bejerano, 2008). In general, if course instructors enthusiastically embrace the online approach and integrate assignments with course material, then the students embraced it as well (Arasasingham et al., 2011). Educators cannot use a 'one-size fits all' approach with respect to online homework systems as not all students benefit equally from online homework system (Peng, 2009).

While the debate continues regarding the general value of homework as well as the value of online homework, researchers are beginning to explore the relationship between different computerized educational settings and student performance. Educational settings include the number of times students may retry problems, availability of instruction manuals and ungraded problems, seeking mastery versus limited attempts, static versus algorithmic problems, unlimited versus limited completion time, and printing abilities. With respect to multiple re-tries for homework, some researchers indicate that this encourages a 'guess-and-check' strategy instead of careful problem-solving (Pascarella, 2004). In an operations management class, an online homework system compared 2 attempts versus 4, and results indicate that more attempts (4) actually decreased student success (Yourstone, Kraye & Albaum, 2010). Individual differences, such as intrinsic motivation, and computer efficacy (or an individual's confidence in ability to use the computer) are crucial factors in determining the success of an educational system, but perceived interactivity of the system is not a factor (Peng, 2009). Some students increase their homework effort not in an effort to learn, but merely to use the shortcuts to accomplish the task (Peng, 2009). With respect to performance differences between FTF and online education, academic maturity is a significant factor as freshman perform significantly worse than upperclassman (Urtel, 2009), and undergraduates performed significantly worse on homework than graduates (Fish, 2012). Gender is not a significant factor (Urtel, 2009). However, the relationship between performance and ethnicity (white, black or Hispanic) is not significant for blacks or Hispanics, but Caucasians tend to do better in FTF (Urtel, 2009).

Therefore, since the results regarding online performance remain mixed, much research remains to be evaluated (Biktimirov & Klassen, 2008). In general, online homework programs encourage learning and 'mastery' of material through many attempts at the problems. Given current computer software grading abilities, problems are scaffolded. By scaffolded, one part of the question will directly relate to the next, and so on. Essentially, students are 'walked' through the problem-solving steps to the final answer. Given today's technological capabilities, computer-generated and computer-graded, open-ended problems, whereby large, complex problems are given and the student, without prompting from one logical point of the problem to another, are not possible. (Note the instructor has the ability to input customized, static questions into the computer-managed homework system, which are graded by the instructor.) What is the relationship in student performance between computer-generated problems versus post in-class problems? Hypothetically, students who use computer-managed homework should achieve a similar score on post-homework in-class testing. Therefore, the specific hypothesis tested here are:

(1) There will be a relationship between the computer-managed homework and the in-class testing performance, regardless of testing question format.

H_o: $\sigma_{cmh} = \sigma_{ict} = \sigma_{scaffold} = \sigma_{partial} = \sigma_{open\text{-}ended}$

H_1: $\sigma_{cmh} \neq \sigma_{ict} \neq \sigma_{scaffold} \neq \sigma_{partial} \neq \sigma_{open\text{-}ended}$

(2) Student performance on the computer-managed homework will be equivalent to student in-class testing performance, regardless of testing question format.
H_o: $\mu_{cmh} = \mu_{ict} = \mu_{scaffold} = \mu_{partial} = \mu_{open\text{-}ended}$
$H_{1:}$ $\mu_{cmh} \neq \mu_{ict} \neq \mu_{scaffold} \neq \mu_{partial} \neq \mu_{open\text{-}ended}$

(3) Variability in student computer-managed homework performance will equal the variability for in-class testing performance, regardless of testing question format.
H_o: $\sigma_{cmh}^2 = \sigma_{ict}^2 = \sigma_{scaffold}^2 = \sigma_{partial}^2 = \sigma_{open\text{-}ended}^2$
$H_{1:}$ $\sigma_{cmh}^2 \neq \sigma_{ict}^2 \neq \sigma_{scaffold}^2 \neq \sigma_{partial}^2 \neq \sigma_{open\text{-}ended}^2$

Since only one study studied the relationship between homework question format and in-class testing (multiple choice) (Peters et al., 2002), this is another area ripe for research, and the focus here.

METHOD

Over the course of a semester, 31 students in a graduate MBA operations management class at an AACSB-accredited university in the northeast used a computer-managed homework system as part of their course work. The intent of this research is **not** to evaluate the performance of the computer-managed homework system and corresponding textbook used in the course, but rather to evaluate student performance when using it versus their in-class performance. Therefore, other than to note that the specific package and textbook are very popular in the operations management arena, the specific one used is not noted.

Homework corresponded to 5% of each student's grade and was due on the evening prior to a corresponding in-class quiz. Quizzes (where the best 8 of 10) counted for 31% of the student's final grade. A midterm and a non-cumulative final exam were each worth 32% of the student's final average. Quizzes, the midterm exam, and the final exam included multiple choice, short answer, interpretation and quantitative problems (with formulas provided). In developing the quizzes and the final exam, the instructor developed similar problems to the computer-managed system and tracked the corresponding student results throughout the semester.

The computer-managed homework uses 100% scaffolded, quantitative questions whereby the numbers are randomized and different between each student. The computer program does not have the capability to grade open-ended questions at this time. For each of the 9 homework assignments, the instructor designated specific homework problems corresponding to in-class material and the impending quiz. Each homework assignment consisted of 2 to 4 problems (potentially with sub-sections) that corresponded to similar book problems and took the student roughly 30 to 60 minutes to complete. Although the instructor can develop customized questions, this option was never used. In keeping with current best practices, additional suggested problems with solutions were available on the College course management system (Angel) for the student to attempt. The instructor encouraged students to review these prior to attempting the computer-managed homework. For each assignment, the student had 3 tries on each problem to encourage mastery, problems were algorithmic not static, could not be printed out to work offline, and had unlimited time.

In developing the testing, three categories of in-class problems were tested, including scaffolded, partially-open, and open. Scaffolded questions encourage logical questioning and development of the problem whereby one question result is used in the next question analysis, and so on. (See Figure 1 for an example of an in-class testing scaffolded question with its corresponding answer and rubric.) Partially-open questions may include some scaffolding and some open-ended portion. (See Figure 2 for an example of an in-class testing partially-open question with its corresponding answer and rubric.) Open questions are large, complex problems students develop without logical questioning, essentially a 'blank sheet of paper'. (See Figure 3 for an example of an in-class open testing question with its corresponding answer and rubric.)

For the purposes of this study, the database includes student scores for 5 scaffolded questions (1 midterm, 2 quiz questions and 2 final questions), 3 partially-open questions (1 midterm and 2 quiz questions), and 5 open questions (3 quiz questions, 1 midterm question and 2 final question). Student scores for the corresponding problems were gathered from the computer-managed grade book to complete the database. Two students who did not complete at least one of the computer-managed assignments were not included. The computer grade is based upon the percent correct within each problem and an internal weight developed by the computer designers.

Figure 1: In-class Scaffolded Question, Answer & Rubric

Two different manufacturing processes are being considered for making a new product. The first process is less capital intensive, with fixed costs of only $25,000 per year and variable costs of $200 per unit. The second process has fixed costs of $100,000 but variable costs of only $75 per unit.

a. What is the break-even quantity? [2 points]

$$Q = \frac{100{,}000 - 25{,}000}{200 - 75} = 600 \text{ units}$$

b. The forecast indicates that 700 units per year of the new product are expected. Which process is preferred and why? [3 points]

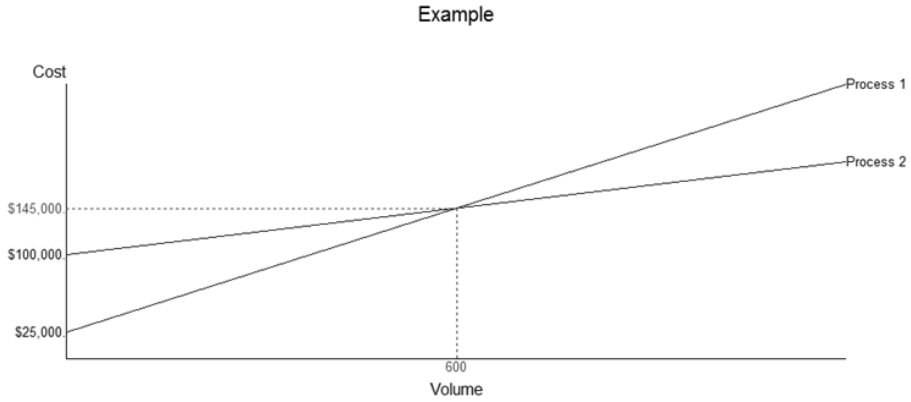
Either:

TC1 = 25,000 + 200 (700) = $165,000

TC2 = 100,000 + 75(700) = $152,500

Therefore, since the total costs for process 2 ($152,500) are less than the total costs for process 1 ($165,000), choose process 2.

OR



Since Q = 700, which is greater than the break-even quantity of 600, process 2 costs will be less than those of process 1 and therefore, choose process 2.

Rubric:

a. 2 points with -1/4 for setting up equation and incorrect answer.

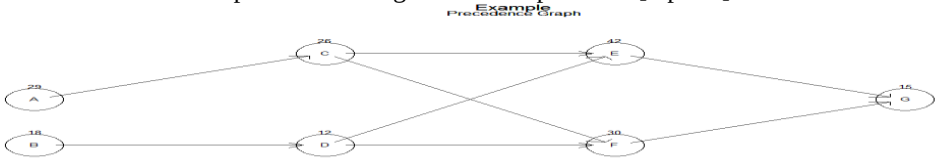
b. Student must either calculate both equations (1 point, -1/4 for incorrect calculation) and then answer question appropriately OR complete graph (2 points – 1 each line) and answer question appropriately. Answer to question must include correct response (process 2; -1/2 pt) with appropriate costs (- ½).

Figure 2: In-class Partially-Open Question, Answer & Rubric

A manager is looking to balance the following line for an output of 60 seconds per unit. Using the LONGEST TASK TIME heuristic, breaking ties randomly, balance the line for her. The following table describes the tasks necessary to produce this product:

Task	Predecessor	Time (seconds)
A	-	29
B	-	18
C	A	26
D	B	12
E	C, D	42
F	C, D	30
G	E, F	15

a. Draw the precedence diagram for this product. [1 point]



b. Assign tasks to workstations using the LONGEST TASK TIME heuristic (break ties randomly). Assume the cycle time is 60 seconds per unit. [5 points]

Station	Task	Time (seconds)	Time left (seconds)	Ready tasks	Assigned stat work time
				A,B	
1	A	29	31	B,C	
	C	26	5	B	55
2	B	18	42	D	
	D	12	30	E,F	
	F	30	0	E	60
3	E	42	18	G	
	G	15	3		57

c. What are the idle times for each workstation in (b), the total line idle time, and the efficiency of the line in (b)? [3 points]

Workstation #	Tasks	Total Time	Idle Time (seconds)
1	A,C	55	5
2	B, D, F	60	0
3	E, G	57	3

Total Line Idle Time = 3(60) -172 = 8 or (5+0+3) = 8
Efficiency = 172/ 3(60) = 95.56%

Rubric:

a. Precedence diagram must include arrows indicating precedence. Partial credit for half correct. Response is used in (b).
b. Missing ready task list = -1 point. Must indicate total cumulative time when adding each task = -1 if answer appears correct. Violation of heuristic (longest task time) but precedence is correct, + 2 ½ points. Violation of precedence in assigning using heuristic= Tasks a through d correct = +2 ½, e or f out of order = +3. If task g is assigned to workstation #1 or #2, only +1 for credit.
c. Each question = 1 point with -1/4 for setting up correct equation and incorrect answer.

Figure 3: In-class Open Question, Answer & Rubric

A state department of tourism and recreation collects data on the number of cars with out-of-state license plates in a state park. The number of cars that enters the park varies. They record the data in the table below. Assist the department in creating an appropriate control chart(s) for a 95% confidence interval. Is the process in control? Why or why not? [5 points]

Day	1	2	3	4	5
# of Out-of-State License Plates	10	9	12	15	7

UCL = 10.6 + 2 $\sqrt{10.6}$ = 17.12
CL = 10.6
LCL = 10.6 - 2 $\sqrt{10.6}$ = 4.08

Since each individual sample (10, 9, 12, 15 and 7) all fall within control limits [4.08, 17.12], the process is in control.

Rubric:

- Each question = 1 point with -1/4 for setting up equation and incorrect answer; if Z ≠2, but equation correct = -1/2.
- Answer to question must include correct response (yes; -1/2 pt); each individual sample (respective sample numbers; -1/2 pt), within limits (statement = ½) with correct limits (-1/2 pt).

ANALYSIS

In general, overall graduate student performance on the computer homework was significantly different than in-class testing results (p=.00). As shown in Table 1, students averaged 90.96 (σ = 13.99) on the computer problems associated with this study, or essentially 'mastery' level. However, corresponding students in-class testing averaged 81.85 (σ = 10.76). Correlation analysis revealed indicated weak correlation between the computer performance and in-class testing (σ = .23). The computer homework variance is not significantly different than the in-class performance variance (*F*=.15).

Table 1: Students Average and Standard Deviation Results for Computer Homework and In-Class Performance

	Computer Homework				In-Class Performance			
	Scaffold	Partial	Open	Overall	Scaffold	Partial	Open	Overall
Average	91.55	91.00	90.32	90.96	84.68	82.75	79.26	81.85
Std. Deviation	12.58	16.77	17.93	13.99	11.55	15.51	13.76	10.76

Since students may not have performed equally on each of the conceptual areas, analysis included further separating the computer homework into the corresponding conceptual areas that were tested in-class for direct comparison. Specifically, scaffold in-class testing concepts included productivity, break-even, inventory management, scheduling, and Master Production Scheduling (MPS) concepts. Similarly, partial in-class testing concepts included facility layout, forecasting and Material Requirements Planning (MRP). Open in-class testing concepts included statistical quality control, aggregate planning, capacity, forecasting, and MRP. On the corresponding computer homework, students averaged 91.55 (σ = 12.58) on the scaffold concepts, 91.00 (σ = 16.77) on the partial concepts and 90.32 (σ = 17.93) on the open concepts. Student averages for in-class testing revealed an average of 84.68 (σ = 11.55) on scaffold concepts, 82.75 (σ = 15.51) on partial concepts and 79.26 (σ = 13.76) on open concepts. As shown in Table 2, student paired t-test comparison of results on the computer homework versus in-class testing indicate a significant difference for scaffold concepts (p=.00), partial (p=.03) and open (p=.01). Interestingly, correlation between computer homework performance and in-class testing, drops as the questions become more 'open-ended'. That is, the correlation for scaffold questions is moderate (σ=.52), is weaker for partial questions (σ=.21), and virtually no relationship exists for open questions (σ=.08).

Table 2: Statistical Comparison of Computer Homework versus In-Class Testing Performance

	t-Test (p)	Correlation	*F*-Test
Overall Computer vs. In-Class Testing	0.00	0.23	0.15
Computer Scaffold vs. In-class Scaffold	0.00	0.52	0.64
Computer Partial vs. In-class Partial	0.03	0.21	0.67
Computer Open vs. In-class Open	0.01	0.08	0.15

Analysis of differences between student performance on the computer homework concepts indicates that the student performance between the various formats in not significantly different as shown in Table 3 (scaffold versus partial concepts (p=.83), scaffold versus open concepts (p=.84), and partial versus open concepts (p=.68). Students' performance on the computer program was moderately related throughout (correlations greater than .5 on all concept formats). The only statistical difference between variances detected was the difference between the variance for scaffold questions and open questions (*F*=.05). As shown in Table 1, students were more consistent in their computer performance on scaffold questions than open concept questions. However, with respect to in-class testing, student performance between scaffold and open concepts is significantly different (p=.02). In-class testing is insignificant for scaffold versus partial concepts (p=.48) and partial versus open concepts (p=.14). Students' performance between different question formats was moderately related (correlations greater than .40), and there were no significant differences between format variation (*F*>.05).

Table 3: Comparison of Different Question Format for Computer Homework and In-Class Performance within Treatment

	Computer Homework Performance			In-Class Testing Performance		
	t-Test (p)	Correlation	*F*-Test	t-Test (p)	Correlation	*F*-Test
Scaffold vs. Partial Concepts	0.83	0.54	0.11	0.48	0.40	0.11
Scaffold vs. Open Concepts	0.64	0.56	0.05	0.02	0.49	0.34
Partial vs. Open Concepts	0.68	0.86	0.71	0.14	0.62	0.51

Direct comparison of computer homework versus in-class performance by operations management topic indicated a significant difference in student performance for productivity (p=.00), break-even analysis (p=.00), facility layout (p=.00), statistical quality control (p=.00), forecasting (p=.01), scheduling (p=.00) and capacity (p=.00). Difference for inventory management (p=.38), aggregate planning (p=.79), MRP (p=.47) and MPS (p=.30) were insignificant. Moderate to weak relationships between the computer homework and in-class testing for productivity (σ=.47), MPS (σ=.38), facility layout (σ=.22), aggregate planning (σ=.17) and MRP (σ=.17). Other topic areas were very weak or even negatively related. Students' in-class performance varied significantly more than the computer performance on productivity (*F*=.00), break-even (*F*=.00), facility layout (*F*=.00), statistical quality control (*F*=.00), scheduling (*F*=.03) and capacity (*F*=.00).

Table 4: Computer Homework vs. In-Class Testing Performance Comparison by Topic

TOPIC	Average		Standard Deviation		t-TEST	Correlation	*F*-test
	Computer	In-Class	Computer	In-Class			
Productivity	96.48	82.34	7.85	18.75	0.00	0.47	0.00
Breakeven	98.75	87.42	4.92	13.14	0.00	0.07	0.00
Facility Layout	96.77	74.05	10.02	21.28	0.00	0.22	0.00
SQC	100.00	74.79	0.00	16.04	0.00	0.00	0.00
Forecast	95.65	81.79	15.84	14.98	0.01	-0.16	0.76
Inventory	96.77	93.54	12.49	8.37	0.38	-0.13	0.03
Aggregate Plan	90.78	89.84	21.44	7.78	0.79	0.17	0.00
MRP	89.58	85.60	26.75	20.92	0.47	0.17	0.18
Scheduling	98.65	91.35	3.64	13.14	0.00	-0.08	0.00
Capacity	100.00	70.90	0.00	37.85	0.00	0.00	0.00
MPS	76.3	68.75	8.51	36.26	0.30	0.38	0.97

DISCUSSION

In general, these results support the concept that online education does not replicate the learning that occurs in the traditional FTF classroom (Bejerano, 2008). In spite of the fact that the homework is set up to achieve 'mastery', and therefore, intuitively encourage long-term learning, significant differences exist between online homework and corresponding in-class performance. If a student 'mastered' the concept through the homework, then the students corresponding in-class performance should correspond directly to in-class performance. However, the overall results indicate that this did not occur. Why? Perhaps, students did not learn the mathematical tool through completing the problems on the computer-managed software. Or students may have 'guessed-and-checked' their way through the homework or 'cheated' in some manner. Another possibility is that students did not practice enough problems to perform to the expected mastery-level on the test. Or since students were able to try the problems several times on the computer, they did not adequately learn the quantitative techniques. These are just some of the potential possibilities.

While other researchers demonstrated positive relationships with homework (Rayburn & Rayburn, 1999; Eskey & Faley, 1988) or no relationship (Peters et al., 2002) or even negative or indifferent results (Anstine and Skidmore, 2005; Bonham et al., 2001; Bonham et al. 2003; Cole & Todd, 2003; Daymont & Blaue, 2008; Horspool & Lange, 2012; Peters et al., 2002; Topper, 2007), and others noted weak correlations between online homework and student performance on examinations (Fisher & Holme, 2000; Chamala et al., 2006), these results demonstrate that there may be a missing item to these studies. Our study demonstrates a difference in performance between online and FTF performance based upon testing format. On the 'surface', this study indicates a negative to little value to computer-managed homework, supporting previous studies (Peters et al., 2002); however, when evaluating the results based upon testing format, results differ. Results show a moderate relationship between computer-managed homework and scaffolded questions, but not partial or open-ended questions. Therefore, this leads to the question: what type of student testing existed in the other studies? In this study, student learning between online scaffold questions and FTF scaffold questions is apparent; however, when students are asked to develop the entire or partial problem-solving technique on their own, learning is not apparent. It also prompts the questions: what level of learning is the student expected to attain? What level of learning – and assurance of learning - is being tested? What level of testing is the instructor interested in measuring? What level of testing – and assurance of learning – is the instructor interested in measuring? Taking this discussion a step further, Bloom's taxonomy outlines a framework for classifying what instructors expect students to learn as a result of instruction, and then through learning goals and objectives, develop relevant testing (Krathwohl, 2002). What is the relationship between computer-managed assignments and Bloom's taxonomy? What is the relationship between computer-managed homework and different testing formats? These results demonstrate that learning exists between the computer-managed homework and in-class testing when questions are scaffolded, but not open-ended or partially-open. When students are prompted by scaffolded questions for the problem-solving logic, they can equally as well on corresponding in-class testing. However, when students

must develop the problem-solving logic on their own (after completing the scaffolded computer-managed homework), they can't. Perhaps by using computer-managed homework students become complacent in thinking about how to solve problems or merely complete the homework without thinking or do not remember the scaffold logic that they were taught through the computer-managed homework.

The topic-by-topic comparison reveals potential areas where student performance in the online homework did not match FTF testing (for capacity or statistical process control questions). Why? If students performed well online, why weren't they able to replicate that in class? Possible explanations include student cheating, or students short-cut the online system merely to complete the homework, or the homework was too easy, or by giving multiple chances, the student can easily achieve perfection, or the instructor may need to modify the instruction method. For the last possibility, differences in the instructor's in-class teaching method and the method used in the textbook (and corresponding textbook) may exist and contribute to student's inability to do well.

In general, these preliminary results imply that since the computer uses scaffold questions throughout, this may not encourage the development of critical thinking skills toward the logical development of solutions for the more complex 'open-ended' questions. This is not to say that computer-managed homework systems do not have their place in the learning environment - as they certainly do! However, the current computer-managed systems may need to be further developed to allow for answering and computer grading of the open questions, that is, logical problem-solving skills that are inherent in the problem statements in scaffold questioning. Without a doubt, technology will develop to this level in the future. Obviously, while our study uncovered another potential factor to consider in the online environment (level of testing), other questions were raised, which may prompt future studies. These results support the notion that the computer-managed activities that an instructor chooses may impact the level of learning that a student attains. Stay tuned!

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Unsustainable Supply Chains: Using "The Story of Stuff" in the Business Classroom

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ABSTRACT

Annie Leonard's web video "The Story of Stuff" was used to supplement a traditional textbook-based presentation of the basic concepts of supply chain management. The video takes a critical approach to supply chains, one that is infused with a deep sustainability consciousness. Leonard deploys an openly critical language that stands in marked contrast to the relatively "neutral" language of the typical textbook. The video allows several key issues to enter and animate classroom conversation, and, unlike the typical textbook, it sets out to make a strong emotional impact upon students in its call to action in helping build a more sustainable world.

Keywords: Supply Chain Management, Sustainability, The Story of Stuff

INTRODUCTION

Annie Leonard's 22-minute viral video "The Story of Stuff," which first appeared on YouTube in 2007, can be put to powerful use in the business classroom. "The Story of Stuff" offers an unorthodox but thought-provoking introduction to the basic concepts of supply chain management (SCM). It does so by employing three distinct strategies: infusing its account of a supply chain with a sustainability consciousness; using a sharp and critical language that is at odds with the relatively "neutral" language found in commonly used textbooks that present the same material; and using concrete, real-world examples to illustrate the impact of activities at each stage of the supply chain on individuals, society and the natural environment.

This paper will describe the use of the video to introduce the topic of SCM in two sections of an undergraduate operations management (OM) class. In both sections, the topic was presented using two approaches employed alongside each other: a "classic" and conventional approach based upon a well-established textbook in the field (Heizer & Render, 2010); and an "alternative" approach based upon the video. The two approaches not only complemented each other, but also generated productive dissonance, provoking students into discussion in an attempt to resolve the tensions between the two divergent views of the supply chain.

CONTRASTING VIEWS OF THE SUPPLY CHAIN

Figure 1: The traditional supply chain (4 stages)

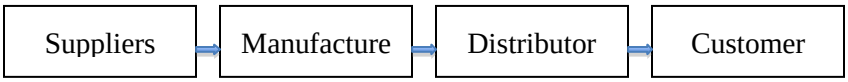

Figure 2: The supply chain according to "The Story of Stuff" (5 stages)

Figure 1 shows a standard, frequently invoked view of the supply chain. It can be found, either in identical form or in some close variation, in a range of OM and SCM texts—for example, Chopra & Meindl (2013), Jacobs & Chase (2008), Bozarth & Handfield (2012), and Stevenson (2008). Figure 2 represents Leonard's view in the video.

As we can see in Figure 2, rather than referring to the first stage as "suppliers," Leonard chooses to call it "extraction." This is part of a two-fold tactic used throughout the video. First, Leonard replaces *actors* with *actions*. This has the effect of imposing a principle of accountability upon the supply chain, as the language moves away

from simply noting the role of a member ("supplier") to the problematic actions performed by that member ("extraction"). The second tactic, related to the first, is a shift away from the relatively "neutral" language widely used in introductory textbooks to a more *critical* language that explicitly passes ethical judgement upon those practices. By referring to the process of sourcing raw materials as "extraction," the video conjures up an image of environmental harm and natural resource exploitation.

Other than drawing attention to the negative consequences of supply chain actions, Leonard's explicit critique of those actions also serves as a reminder of what is obscured by traditional presentations of SCM. For example, according to Bozarth & Handfield (2012), the objective of any supply chain is "the active management of supply chain activities and relationships in order to maximize customer value and achieve a sustainable competitive advantage." Similarly, the *APICS Dictionary* (Blackstone, 2010) defines the objective of SCM as "creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand, and measuring performance globally." Neither of these definitions explicitly acknowledges the harmful environmental and social impacts of supply chains, or the need to actively track, measure and control them. The sustainability implications of supply chain actions are simply absent from these introductory views of SCM. Thus, using Leonard's video alongside a traditional textbook presentation of SCM serves to bring sustainability into the classroom conversation.

Critique of Consumption

A sharp contrast emerges when Leonard renames the "customer" stage of the traditional supply chain as "consumption". This permits her to draw a connection between three factors: the level of materials flow through the system (which the traditional supply chain aims to maximize); escalating levels of over-consumption in contemporary society; and environmental damage. She points out that on average, only 1% of materials that flow through a supply chain are still in use 6 months after sale, a rate of materials throughput that is deeply problematic from a sustainability point of view.

The shift from a discourse of the "customer" to that of "consumption" in the video also makes possible a critique of two specific business practices that actively aim to achieve ever-increasing rates of consumption: those of planned and perceived obsolescence. Planned obsolescence limits the life of a product through design choices, while perceived obsolescence operates through advertising practices that induce consumers to regularly upgrade to new products and services regardless of need. These practices work in concert with SCM's objective of maximizing materials throughput, and thus, supply chain profits. Leonard demonstrates the sustainability implications of these ever-higher rates of consumption by pointing to the basic flow diagram of a supply chain, calling it a "system in crisis": "And the reason it is in crisis is that that it is a linear system and we live on a finite planet and you can not run a linear system on a finite planet indefinitely."

Linear System on a Finite Planet

The traditional view of the supply chain—that it is a linear system on a finite planet—provides the opportunity for opening up a classroom discussion and critique on two fronts. On the one hand, it draws attention to the fact that most introductory textbook representations of a supply chain predominantly emphasize product flow in one direction: from supplier to customer. Thus, a model of *linear* flow is privileged over a model of *circular* flow that would explicitly acknowledge sustainability concerns by giving equal weight to reverse product flows of technical and biological nutrients (McDonough & Braungart, 2002) that are reused and fed back into the input stages. Instead, the primary image of the supply chain traditionally presented to students is that of a "take-make-waste" system.

In addition to pointing out the linear nature of the system, the video draws attention to the finite nature of the planet's resources, thus providing an opening for a class discussion of limits. Students are often surprised to learn that, as early as forty years ago, system dynamics research issued serious warnings about the ability of the earth to support then-prevailing growth rates in people, production and pollution (Meadows, Randers & Meadows, 2004). Since then, those rates of growth have further multiplied. Speth (2009) details the damaging effects of escalating business and GDP growth, and calls for a "postgrowth society". Speth's questioning of the growth imperative is counter-intuitive to current business thought, and is thus a productive challenge for students to confront. It opens the door to a discussion about the kinds of business activity that must grow—such as investment in climate-friendly technologies, public infrastructure, and initiatives to reduce income inequality—and would thus be exceptions to Speth's call.

As we can see from Figure 1, the typical traditional supply chain ends at the customer stage. But Leonard's video builds another, final stage into the chain: that of disposal. This sets the stage for a discussion of recycling, both emphasizing its importance while (more importantly) dispelling the myth that recycling is "enough." Leonard reminds us that even if all customers were dedicated recyclers, post-consumer waste is only the tip of the iceberg. What is hidden from view is the enormous amount of resources used and waste generated upstream in order to create the product for the consumer in the first place. Focusing inordinately on recycling is to confine one's attention to dealing with the *symptoms* of a larger problem, that of over-consumption. As Forrester (2009) warns, such practices can create the illusion in customers and in society that the underlying causes of environmental destruction need not be addressed immediately. A true sustainable solution requires us to slow down our levels of consumption across the board. This leads to the implication, which often surprises students, that sustainability, broadly construed, can only be achieved by overturning conventional wisdom and actively reducing supply chain materials throughput. This is a valuable point for discussion in the SCM classroom because it forces students to grapple with the tensions between a traditional view of the SCM and one that explicitly takes sustainability into account.

Using Affect and a Focus on Individuals

Springgay (2011) has argued that learning and knowledge production take place not only by deploying reason and objectivity but also through a "pedagogy of affect" which seeks to arouse affective or emotional responses in the audience. Leonard uses this technique frequently in the video. She cautions the viewer about the potential harm caused by untested and toxic raw materials that flow through the supply chain by invoking the image of factory workers, frequently women of reproductive age, who are compelled by economic circumstances to work in environments with high levels of reproductive toxins and carcinogens. She points out, alarmingly, that human breast milk has been shown to contain high levels of toxic contaminants. The effect of her spoken words is enhanced by the visual impact of the animated images. Her point is made not only by citing scientific evidence but also appealing to the audience's emotions.

Leonard presents the supply chain not only as a flow diagram, as a system, but also invokes the place of individuals within it. This focus on people seeks to render the supply chain less abstract for students. In addition, her repeated reference to the impact of the supply chain upon individuals at various stages of the chain underlines the social impact of business, a key component of sustainability. Immediately after presenting an animated drawing of a supply chain flow chart, she points out, "One of the most important things that's missing [from this diagram] is people … People live and work all along this system." The opening image of the video itself is not of a supply chain diagram but of Leonard as an individual, entering the frame with an iPod in her hand, declaring, "Do you have one of these? I get a little obsessed with mine … have you ever wondered where all the stuff we buy comes from and where it goes when we throw it out?" By using this tactic, Leonard presents herself as a human individual to the viewer rather than as an impersonal, authoritative, and removed "Voice of God" offscreen narrator, a figure commonly employed in documentary films (Wolfe, 1997).

While explaining the distribution stage of the supply chain, Leonard narrates an anecdote about stopping at a Radio Shack store and being assisted by a sales employee in picking out a $4.99 radio. She then wonders how it was possible, given the length and complexity of its supply chain, that she was able to purchase the radio at such an unlikely, low price. "$4.99 wouldn't even pay the rent for the shelf space it occupied until I came along, let alone part of the staff guy's salary that helped me pick it out, or the multiple ocean cruises and truck rides pieces of this radio went on. That's how I realized, I didn't pay for the radio." Leonard thus sets the stage for a discussion of externalized cost—all the costs stemming from the impact on the environment and society that are not captured by the purchase price of the product. The sustainability implications of externalized cost are also made tangible by the video's use of the figure of a Radio Shack employee, which is an attempt to have the audience identify emotionally with an individual, thus rendering the concept less abstract and more concrete and "humanized".

Finally, Leonard also mobilizes this image and notion of the human individual in the closing moments of the video. After spending nearly twenty minutes mounting a critique of business practices at each stage of the supply chain, she ends the video on a hopeful, optimistic note that leaves the audience in a positive, empowered state: "When people along this system get united, we can reclaim and transform this linear system into something new, a system that doesn't waste resources or people […] Remember that the old way didn't just happen by itself. It's not like gravity that we just gotta live with. People created it. So let's create something new." By concluding the video on a strong note of positive change, she also makes an emotional appeal to the audience—and to every individual within it—to exercise their human agency.

Documentary Style and Voice

The cinematic style of the video is an important contributor to its pedagogical effectiveness. Taken together, the stylistic choices of any documentary film determine what has been called its "voice". Film theorist Bill Nichols has proposed that "Documentaries seek to persuade or convince us by the strength of their point of view and the power of their voice. The voice of documentary is each film's specific way of expressing its way of seeing the world." Nichols (2010) identifies four forms of documentary voice based on address (direct or indirect) and the visible presence or absence of the human body (embodied or disembodied). Leonard uses the "direct and embodied" form in her video. Not only is she physically present in the film, she also addresses us directly. This combination is forceful both in engaging the student audience and also spurring them to respond and take action to improve conditions in an unsustainable world.

To draw a contrast, indirect address in a documentary is not aimed directly at the audience. Nichols likens it to a film asking the question "This is one way to view the world; what do you make of it?". But direct address frequently offers a greater immediacy and emotional jolt to the viewer. For Nichols, direct address "creates the sense that the film is making a proposal to us about the nature of the historical world: "Things are like this, aren't they?" or even about how they might be altered: "Things could be like this, couldn't they?"". Leonard's video is not only a description of the ways in which supply chains are unsustainable; it is also a call to action, one that is reinforced by the direct address and embodied form of the documentary.

STUDENT RESPONSES

Leonard's video was used in two sections of an OM course. Students provided written responses to the question "Did you find the video to be helpful in gaining an introductory, basic understanding of supply chain management?" In the first section, 18 of 22 students responded yes; in the second section, 17 of 21 students did so. In other written comments, students cited the following reasons most frequently in approval of the video: it addressed SCM problems and issues not raised in the textbook; it gave "an alternative point of view" on the material; the video "grabbed" their attention; and that it felt "real" and "true to the real world".

One of the risks of employing the "pedagogy of affect" is its ability to give rise to unanticipated, negative emotional affects. The students who reacted negatively to the video accounted for approximately 19% of each course section. The most common complaints these students had about the video were: it was too critical of business corporations; Leonard's work experience at Greenpeace "skewed her message" towards environmentalism and "against business"; it was "too one-sided" in that it did not celebrate what corporations do; and that it is "not always possible or practical" for firms to address concerns arising from their social and environmental impacts. The next time I use the video, I plan to provide a framing introduction that explicitly situates the video as a "critique" of normal business practice. Providing such a warning to students in advance might prepare them better for the video's strong and critical tone.

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The Role of Performance Feedback in the Transfer of Teamwork Skills

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ABSTRACT

The popularity of team-based education in management is extremely high and shows little sign of abating. The perceived value of such educational strategies is driven by accrediting organizations and the increasing body of evidence that there are demonstrable skills that can be acquired from participating in classroom activities. However, it is not enough to acquire knowledge of these skills and perform well on an objective test or merely demonstrate the skills in a contrived classroom environment. The value of team-based exercises is in their potential to instill skills in students that are transferable to multiple tasks. A major prerequisite for this transfer is students' increased self-efficacy in their abilities. This study attempts to further delineate the importance of feedback and practice in establishing students' self-efficacy in their team-related KSAs. Feedback concerning a team's prior level of effectiveness should have implications for the future use of desirable teamwork behaviors.

Keywords: teamwork skills, feedback, self-efficacy

INTRODUCTION

Educators have long suggested that group or team based assignments in classes are an effective means of imparting course concepts to students and allowing them to acquire "real world" group process skills. Reynolds (2013) adeptly describes how the interest in team-based education can be traced to Lewin's experimental OB program at MIT and the T-group learning programs developed by he and his colleagues in the late 1940s (Lippitt, 1949). These ideas were further developed and popularized by Kolb, Rubin, and McIntyre (1971) in their experiential learning approach to teaching management and their textbook which is still in widespread use today (Osland, J.S., Kolb, D.A., Rubin, I.M., & Turner, M.E., 2006). Educational psychologists will also be quick to cite the influential work of David and Roger Johnson (Johnson & Johnson, 1974; Johnson, Johnson, & Smith, 1991) who are still active in researching and documenting the value of cooperative, team-based education. Furthermore, the emphasis on team building in management can, as always, be traced to the seminal Hawthorne studies (Roethlisberger & Dickson, 1939). The use of teams in teaching business courses is also incentivized and sanctioned by the AACSB, the preeminent international accrediting body for university business schools.

Despite the long and storied history of team-based education and management strategies, resistance is still high, and the exact nature of their benefits and the mechanisms by which such benefits are achieved are subject to debate. Students' and employees' dissatisfaction with group assignments has been widely discussed and documented (Bailey, Sass, Swiercz, Seal, & Kayes, 2005; Buckenmeyer, 2000; Hoffman & Rogelberg, 2001; Jassawalla, Sashittal, & Malshe, 2009; Kirkman, Jones, & Shapiro, 2000) as has the potential lack of relevance to real world work experiences (Chen, Donahue, & Klimoski, 2004). Further evidence is required to document the actual means by which the teamwork skills developed in the classroom may be transferred to other relevant situations (Hobson, Sturpeck, Griffin, Szostek, Selledurai, & Rominger, 2013).

Ettington and Camp (2002), extending the suggestions of others (Barry, 1989; Feichtner & Davis, 1985; Kolb, 1999; Lyons, 1991) provide a list of guidelines for improving the value of team-based assignments that have been incorporated into our current investigation. Among these guidelines are 1) to develop assignments that are may be perceived as relevant to the course content, 2) to assign tasks that require the team members to work interdependently, 3) to assign multiple tasks to the teams so that they may have opportunities to act upon the feedback they have received, 4) keeping group membership stable so that group processes can have ample time to develop, and 5) requiring that students keep a log in which they record the group's activities in terms of concepts they have learned in the course. Ettington and Camp (2002) base many of their suggestions on Kolb's (1984) Experiential Learning Theory and persuasively argue that the incorporation of such features into team-based educational settings should greatly facilitate the transfer of acquired skills to the workplace.

Teamwork knowledge, skills, and abilities

Once these features are incorporated into team-based assignments, the next step would be to assess the extent to which such improvements achieved the goal of imparting meaningful skills to students. Stevens and Campion (1994a) documented that the major dimensions of teamwork knowledge, skills, and abilities (KSAs) that are important for accomplishing group tasks in organizations (conflict resolution, collaborative problem solving, communication, goal setting and performance management, and planning and task coordination) were in fact correlated with peer and supervisor ratings of teamwork effectiveness and overall performance in two organizational settings. Stevens and Campion labeled the first three KSA dimensions as "interpersonal KSAs" and the last two KSA dimensions as "self-management KSAs." Although scores on the Teamwork KSA measures were correlated with other employment aptitude measures, there was also evidence that teamwork KSAs accounted for additional variability in the criteria. Thus these results seem to provide support for the idea that teamwork KSAs are valid concepts and useful tools for business students to acquire.

In a literature review extending their work on the development of the Teamwork KSAs Test discussed above, Stevens and Campion (1994b) concluded that an area that is rich with opportunity for future research is the training of these KSAs. While pointing out team members may acquire such KSAs by modeling their teammates, job rotation, or simply work experience, they were unable to find documentation of the processes by which this occurs. Chen, et al., (2004) addressed this issue by attempting to demonstrate that teamwork KSAs could be acquired as a result of participation in an undergraduate psychology course. Their course had three major points of emphasis. First lectures, readings and discussions, were used to impart declarative knowledge. The major readings for the course came from a group theory and skills text by Johnson and Johnson (1997). Second, in-class group exercises, were used to apply the declarative knowledge to the development of specific skills and abilities. And lastly, assessment center exercises conducted outside class allowed the students to further apply their newly acquired skills and abilities while participating in simulated "real world" decision-making tasks. Feedback played an important role in all aspects of the training. Students were able to use performance feedback to reflect on their previous behaviors, modify them, and apply them to the next situations.

Chen, et al. (2004) found that, while there was a relationship between cognitive ability and scores on the Teamwork KSAs Test for their students, it was lower than that found by Stevens and Campion (1999). This is a useful first step in establishing that students may gain from teamwork instruction through active practice and that such gains may be independent of their success on traditional knowledge-based tests. Chen, et al. (2004) were able to document a modest increase in their students' scores on the Teamwork KSAs Test which they believe was a significant increase in the practical sense, if not statistically. Their students also evidenced an actual improvement in teamwork skills on one of their assessment center teamwork exercises. This definitely added to the construct validity of the Teamwork KSAs Test and documented that in-class exercises combined with traditional classroom instruction can make a difference in students' behaviors.

Another impressive effort to document an improvement in students' teamwork behaviors in a classroom was carried out by Hobson, et al. (2013). Their evaluation of a semester-long course in teamwork was quite extensive in the breadth of teamwork behaviors involved, fifteen positive and ten negative behaviors, and the amount and quality of the feedback students received. Behavioral observations of the students' participation in leaderless discussion groups were made via videotape and their teamwork behaviors assessed using an instrument developed by Hobson and Kesic (2002). Peer, self, and instructor evaluations using the same instrument were conducted and feedback given to the participants in separate meetings of the three parties. In a second leaderless discussion group following the feedback, statistically significant improvements were found in nine of the positive teamwork behaviors and significant declines were found in two of the ten negative behaviors. Hobson, et al. (2013) persuasively concluded that the course had led to a change in the students' behaviors, however no attempt was made to separate the effects of the various aspects of the course. The behavioral change was attributed to the four major features of the course: knowledge acquisition, practice, assessment, and feedback accompanied by coaching.

The classroom effort described below was intended to facilitate the transfer of students' teamwork KSAs from task to task. Accordingly, students were given multiple opportunities over the course of a 15-week semester to interact with their teammates on a variety of tasks which increased in similarity to that likely to be found in a work environment.

METHOD

Subjects

The participants in this research were students in three different sections of the Fundamentals of Management course at Youngstown State University. Students were assigned to teams as a major feature of the course. An attempt was made to have all teams be composed of four members each, but due to various contingencies, a few teams had five members. Thus, 119 students were assigned to one of 28 teams. The sample sizes varied slightly for the analyses below because of fluctuations in attendance of the team activities. Students were assigned to teams in such a way as to make the teams as diverse as possible in terms of GPA, major, and gender while maintaining as much inter-group homogeneity as possible. Attempts were also made to assign students to groups with teammates whom they did not know well prior to participating in the course. This was done to increase the viability of the course as an explanation for the resulting teamwork rather than previous interactions among the students.

Classroom Activities

Before being assigned to groups, the class had been given approximately four to five hours of instruction on topics related to teamwork and communication. This instruction involved lectures, discussion, and videotaped presentations of effective and ineffective teamwork behaviors. The topics were also covered in two chapters of the required textbook for the course. During this instruction students were given the summary statement of teamwork guidelines in the Appendix of this article. They were also reminded of these guidelines prior to beginning to work on the first consensus-seeking exercise.

Consensus-seeking exercises

Immediately after being assigned to teams, all students completed one of two group consensus-seeking exercises, the "Lost on the Moon (LOM)" (Hall, 1963) or the "Lost at Sea (LAS)" (Knox, 2014) exercise. In addition to providing a group output (their consensus rankings) the tasks take advantage of diversity that exists in teams. The ranking tasks make use of participants' knowledge of a wide range of topics, but do not require any high level analysis or reasoning. Both of these exercises have been used extensively in team building environments and involve individuals first ranking 15 given items in terms of their usefulness for survival in an imaginary situation. The individuals' rankings are then compared to experts' rankings provided by the exercises' authors. Scores are the sum of the absolute differences between the participants' rankings for the items and the rankings of the experts. Scores can potentially range from zero (a perfect score in which all of the items are ranked exactly as the expert judge) to 112 (if one were to come up with ranks that were the inverse of those given by the expert judge). Once the individual participants had completed the exercise (but before it was scored) they met with their teams to complete the exercise again by reaching a group consensus as to how the items should be ranked. Once both the individual members' rankings and team rankings were scored, success on the exercise was defined as whether or not a team was able to "outperform" its best scoring individual member. In these exercises, the smaller the absolute difference between the participant's ranks and the expert's ranks, the better the score. Therefore, if the team's score was lower than the lowest score of all the individual teammates, the team was judged to have been successful.

Feedback

The team scores and the scores of the best performing individual on each team were recorded on a whiteboard. Each of the teams was called upon to discuss their performance on the exercise. Those teams that were successful in exceeding the performance of their best performing member were asked why they thought they were able to do so. Teams that failed to exceed the performance of their best performing member were likewise asked what they might do to improve their interactions. Wherever applicable, references were made to the classroom instruction the students had received prior to participating in the exercises. One of the exercises was completed during the first class in which the students were assigned to teams as an "ice breaker exercise." The second exercise was completed ten weeks later which was just before the teams were scheduled to make their presentations to the class. Students in two of the classes completed the LOM exercise first (n = 19 teams), while the students in the third class completed the LAS exercise first (n = 9 teams). While it was not a major focus of the research, the investigator was aware from previous experience that the LAS exercise was somewhat more difficult than the LOM exercise. The difference in timing of the two exercises was thus raised as a potential research issue. Both of the exercises were assigned with the expectation that the experience of having completed one, would be beneficial in the completion of the second exercise. This was thought to be especially more likely if the team had experienced success on the first exercise.

Team project and presentation

The major team assignment was to complete a research project in which the major course terms and concepts were applied to an analysis of a major industry (restaurants, internet retail, food production, etc.). The teams produced a word-processed version of their analysis and made a formal and presentation of it to the class. These major products of the teams' work together were completed during the last two weeks of a fifteen week semester. Other than their scores on the group consensus exercises, the measures of the students' performance during the course that were relevant to the current study were an exam which covered the teamwork and communication topics that were discussed in the course, a group grade on the written project and a group grade on the team's presentation. The group grade on the paper focused on those aspects of the assignment that the instructor felt to be affected by teamwork, rather than the individual abilities of the students. The students were working together on the written project, but only in the sense that they were assigned the same industry and would have to coordinate their activities with one another. Each team member was to be responsible for specific aspects of both the industry and the course topics that were to be applied to the analysis. One of the major instructions given to the students was that there be as little overlap in what they wrote as possible. Thus students had to spend time planning the project and staying apprised of one another's progress to meet this requirement. Once their individual sections were written, the students were to combine them in a way that the paper looked as much as possible as if it was a group product. The most difficult part of this requirement was the writing of significant transitions between the teammates' sections. The better teams were also able to do enough planning so that there were meaningful and interesting connections to be made between their papers. Lesser requirements for the team aspects of the paper were that the paper be word processed in the same font and that there be a combined reference list of all the teammates' sources in alphabetical order.

The teams also received group grades on their presentations. The group grades were primarily a function of the instructor's evaluation of the extent to which the team members had worked together to prepare and carry out the presentation. PowerPoint slides had to not only be of the same format, but also reflect the same "style." Backgrounds had to be consistent as well as the amount of information placed on the slides, use of graphics, etc. Students were also required to use a traditional mouse rather than a wireless, "portable" mouse so that some coordination would be required among the teammates. One teammate would always be responsible for standing at the podium and changing the slides as his or her teammate was speaking. The students were instructed to make the transitions between slides as "smooth" as possible and with as few cues as possible. This would require further coordination among the teammates and ideally, at least one practice session. The instructor also made a judgment as to how supportive of one another the teammates seemed to be during the presentation in terms of their nonverbal behaviors.

RESULTS

Of the 28 teams participating in the study, 16 were judged to be successful on at least one of the consensus-seeking exercises. As expected, the LAS exercise was significantly more difficult than the LOS exercise at both the individual ($t = 8.11$, 113 df, $p < .001$) and the group level ($t = 6.04$, 26 df, $p < .001$). Of the 16 "successful" teams, 9 were successful on only the LOM exercise, 4 were successful on only the LAS exercise, and 3 teams were successful on both. The results supported the researcher's belief that the LOM and LAS exercises are particularly well suited for use in studies of group behavior. Neither of the cognitive ability measures in the study, GPA or students' scores on the team concepts exam, were significantly related to measures of performance on the LOM and LAS exercises (Table 1). The lack of such relationships adds support to the notion that whatever success the teams experienced was due to them behaving effectively as a team and not to their individual "intellectual" contributions. This belief was further supported in finding that the only significant correlation among the cognitive ability variables and team performance was between the teams' average performance on the team concepts exam and their team's grade on the written project ($r = .38$, $p < .05$). This was as expected if the students had in fact learned something about teamwork from the course and had applied it to working together on the project. Similarly, the correlation between the average exam score and the group presentation score was not significant ($r = .25$, ns), but was in the expected direction.

Table 1: Correlations among key team level variables.

	GPA	Exam	LOM	LOM-S	LAS	LAS-S	Team Paper	Team Presentation
GPA								
Exam	.21							
LOM	-.21	.33						
LOM-S	.14	.24	.57**					
LAS	.24	.12	-.34	.19				
LAS-S	.09	.19	-.18	.04	.64**			
Team Paper	-.07	.38*	.55**	.40*	-.21	-.09		
Team Presentation	-.18	.25	.19	.08	-.19	-.19	.58**	

Notes. n = 29 teams. GPA=Average grade point average of teammates. Exam=Average score on team concepts exam. LOM=Team score on the Lost on the Moon exercise. LOM-S=Team score – Lowest score among teammates on Lost on the Moon exercise. LAS=Team Score on the Lost at Sea exercise. LAS-S= Team score on the Lost at Sea Exercise – Lowest score among teammates on the Lost at Sea exercise.
* $p < .05$ (two-tailed) **$p < .01$ (two-tailed)

The most surprising result of this investigation was the relationship between the measure of success on the LOM exercise and the teams' performance on the written project ($r = .40$, $p < .05$). This relationship was not as expected because the lower the teams' success score on the exercise (i.e., high LOM-S levels, because negative values indicate successful teams), the better they performed on the project. Furthermore, there was a significant difference in performance on this task between those who had experienced success on either of the consensus-seeking exercises and those who had not experienced success ($t = -1.80$, 26 df, $p < .10$). It appears that the feedback that the teams received did have an effect, but not as expected. The average performance on the project for the teams that had not experienced success ($\overline{x} = 92.17$) was greater than the performance of the teams that had experienced success ($\overline{x} = 87.81$).

CONCLUSIONS

Though not in the expected direction, feedback concerning success, in this case a lack of success, does appear to have had an effect on the performance of teams in this course. Those teams who were not successful on either of the group consensus exercises turned out to be the most successful in the end when it counted the most. It is at least plausible that the teams that were not successful on the group consensus exercises were the ones who were more likely to take the feedback to heart and try to do something to improve the functioning of their teams. The successful teams may have felt that there was nothing to be learned or improved upon after experiencing success on the exercises and thus did not continue to apply the teamwork lessons gained in the course.

A shortcoming of the current research effort was a lack of information concerning the students' actual teamwork behaviors. Subsequent research will attempt to collect behavioral measures similar to those developed by Hobson, et al. (2013). Obtaining such measures for all of the team's interactions would be extremely difficult in the course as it is currently structured. However, a sample of such measures during one of the consensus-seeking exercises and again, shortly before the teams complete their group projects should add insight into the extent to which the students' teamwork behaviors are improving and having an impact on their success.
Another very interesting line of research will be to examine the effects of positive and negative team feedback on subsequent teamwork behaviors. In the current research it was expected that those experiencing success would have

higher collective self-efficacy and would thus continue to be successful in the future. Perhaps what is missing is an assessment of the collective attribution for the team's success. In order to continue to function together as a team, and possibly even improve, team members may need to attribute the team's success to their teamwork behaviors and not to teammates' personal capabilities. Thus, the difference between "resting on the team's laurels" and continuing to work together will be an interaction of the success experience and the team's perception of its source.

This study has hopefully added to the evidence that students do in fact benefit from classroom instruction on the effective functioning of teams. The somewhat longitudinal nature of the current effort and the fact that the students' performance on multiple tasks was assessed are also positive features of the research. The students advanced from rather abstract tasks to others that are more indicative of those found in work environments and many became more successful as they did so. One would hope that team-based education will continue to flourish as its value to "real world" applications is further documented.

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APPENDIX

Suggestions for Improving Team Interactions

1. Everyone's opinion is valuable.
    a. After you've voiced your opinion, wait till everyone has at least had an opportunity to voice theirs, before you continue.
    b. Encourage your teammates to offer their inputs if they are hesitant.

2. Listen to your teammates.
    a. Ask for clarification if you are unsure of what a teammate has said or written.
    b. Do not interrupt a team member while they are speaking.

3. Avoid dysfunctional conflict.
    a. Avoid arguing just to "save face."
    b. Separate conflicts based upon "personalities" from those that are related to the team's task.

4. Resolve conflicts in ways that are beneficial to the group.
    a. Avoid short cuts to "consensus." Don't vote, split the difference, or flip coins.
    b. Recognize that agreeing with teammates may be preferable to "getting your way."
    c. Seek win-win solutions to conflicts.

5. Don't be a "free rider."
    a. Prepare for the team's meetings.
    b. Contribute your ideas whenever they are relevant.
    c. Do your share of the team's work.
    d. Offer help to others when they need it.

6. Give the team your undivided attention during meetings.
    a. Meet in an environment that is free from distractions.
    b. Meet at a time that is convenient for all teammates.
    c. Turn off your electronic devices unless they are needed to help the team.
    d. Don't be distracting by doing extraneous things (e.g., talking while others are talking)

7. Keep in mind that you and your teammates are interdependent.
    a. Look for opportunities to help your teammates.
    b. Explicitly ask for help when you need it.
    c. Recognize which of your efforts will be most beneficial to your teammates.
    d. Realize that you must sometimes put others' interests ahead of your own for the good of the team.

8. Provide encouragement to your teammates.
    a. Use everyone's inputs as much as possible.
    b. Compliment teammates for their inputs.

9. Cooperate with the team's structure and norms.
    a. Help teammates to develop schedules and agendas and stick to them.
    b. Try to meet your teammates' expectations of you.

10. Keep the team's goals in focus, help your teammates to do likewise, and work together.

Using Socratic Pedagogy to Deliver Undergraduate Business Education

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ABSTRACT

There are several themes which run through this essay which are designed to generate evaluative (and hopefully collaborative) faculty conversations on the merit and methodologies of Socratic pedagogy for undergraduate business study. They include interdisciplinary education with the liberal arts as a guide, criteria for implementing traditional Socratic pedagogy in undergraduate business schools, mentorship, using simulations in small classes for non-traditional Socratic pedagogy and the many practical issues and costs for a business school to deliver Socratic pedagogy. The inherent question, of course, is will the use of Socratic pedagogy improve the relationship between management education and effective business management decisions?

From a study of the literature, the concept of interactively teaching small groups of undergraduate students (which essentially is Socratic pedagogy) is problematic for the many academic institutions trying to educate the hundreds of thousands of undergraduate business students. Yet my overall conclusion is if there is any way of offering Socratic pedagogy, it is an extraordinary way for business schools to deliver undergraduate education and thus enhance the connection between education and effective later business management decisions.

KEY WORDS: Socratic, interdisciplinary, management, simulations, independent, liberal arts, endowment, pedagogy, mentorship, undergraduate.

INTRODUCTION

Several years ago, Professor Jeffrey Pfeffer and (then) Ph.D. candidate Christina Fong, both of Stanford University, wrote a rather scathing article about the value of the standard MBA (Pfeffer and Fong 2002). A few years later, there was an interesting commentary in the Wall Street Journal (Alsop 2006), which described Stanford's relatively new strategy to offer Acustom@ classes for its MBA program. Both treatises were essentially critiquing the quality of education at business schools, obviously at the MBA level, but by easy regression, programs at the undergraduate level. And *The Economist*, not to be outdone, offered commentary which was critical of the basic strategies of business schools (Economist 2004 and 2011). The issue is *relevance* of business education to the needs of the business community today and in the future, thus the value of business education for students, and therefore the merit of current subject-matter and teaching methods at business schools.

So criticism of both the subject matter and teaching methods of business schools continues--which is healthy considering the dramatic changes in business over the last few years. Relevance is certainly critical, but pedagogy is equally important, and for business schools to extract themselves from their historic narrow academic focus (Economist 2011) and be real educational institutions, pro-active pedagogy and interdisciplinary study are among the requirements.

The basis for this essay is to add a modest group of thoughts on business school subject matter and how the subjects might successfully be taught using the Socratic method. Many of the thoughts contained herein are mine, but derive from a survey of research on the subject (see REFERENCES), practicing the profession as Peter Drucker would say (Drucker 1993), and over the last 20 years, teaching graduate and undergraduate management students at three academic institutions--using, when possible, the Socratic method[1]. It is therefore hoped this essay will offer a dialog among interested academic administrators, students, business executives and particularly business school faculty to enhance effective delivery of undergraduate business education.

[1] A disclaimer: more than 50 years ago the author was an undergraduate and completed a tutorial honors project with William H. Riker, a well-known and very effective professor of Government (Political Science) of that era. Notwithstanding the span many years, that engaging memory is inherently reflected in this essay.

THE LIBERAL ARTS AND SOCRATES

What started my thinking on the subject of Socratic study to deliver undergraduate business education, is it is used effectively in the liberal arts and sciences at notable undergraduate academic institutions as Oxford in England and Lawrence, Sara Lawrence, Wooster and Williams in the United States (Lawrence 2007). So using Socratic study is not a revolutionary idea. And of course it is used at the masters and doctoral graduate levels for many subjects, including the study of law, business and the sciences.

Because Socratic pedagogy offers a collaborative learning environment, it requires students to be active participants in the learning process. Result? Better study habits for students and better communication skills (Barnes 2013); thus better real education and stronger memory of concepts. From a business school perspective, the result is a better foundation for business decisions in the complex global world (Peterson 2009; Friedman 2005; Giacalone 2004; Lawrence 2007).

The leaders in the liberal arts have a strategic objective of offering varying types of Socratic study to students, and thus have set criteria for the academic outcomes as well as how students are evaluated. That includes criteria for the indexing success of students who have participated in Socratic study *after* they have graduated (Beck 2006; Fix at Lawrence 2007).

Identifying students who are interested in doing Socratic study is probably easier for liberal arts institutions and professional schools than undergraduate business schools. From the papers presented at the Lawrence conference (Lawrence 2007), most students from those academic institutions complete (and in some cases are required to complete) a Socratic study program.

And each of the institutions has the financial capability to offer such a program to most or all students. As Dr. Stephen Fix noted in his presentation at the Lawrence conference, Williams has added faculty, they have a healthy endowment which is used to defray the costs of Socratic delivery of education and the use of that teaching methodology is simply a college-wide strategy which is, in fact, marketed to prospective students (Fix at Lawrence 2007).

INTERDISCIPLINARY EDUCATION EQUALS REAL EDUCATION

One of the additional things which business schools can learn from the liberal arts is that interdisciplinary education is real education and inherently follows the Socratic system. There is, in fact, reasonably compelling evidence that the study of undergraduate business in the twenty-first century should be interdisciplinary and include subjects which are outside of the normal business school framework. (Peterson 2009; Giacalone 2004; Lawrence 2007). Interdisciplinary knowledge allows an executive or consultant to better evaluate diverse interests and the social, economic, legal, ethical and political effects of a business decision. Certainly business decisions require managers to use the analyses derived from business courses—as accounting, statistics, marketing, strategy, public policy, etc., with related managerial concepts as the Linear Decision Model (Rowe and Bulgarides 1992), Drucker=s Management by Objectives (Drucker 1993), the Core Competency Theory (Hamel and Prahalad 1996), Michael Porter's five forces (Porter1980), plus the thinking of Jeffrey Pfeffer (Pfeffer 1998), Henry Mintzberg (Minzberg 2011), Rosabeth Moss Kanter (Kanter 2011), Warren Bennis (Bennis 1989) and many others.

But for *competent* business management decisions in the twenty-first century, a knowledge of subjects from the liberal arts is also necessary. So the curricula of undergraduate business should include subjects from the liberal arts as economics, philosophy, English (with a focus on speaking and writing), the natural sciences, political science, mathematics, psychology and sociology (see Giacalone 2004), perhaps adding applied product science, international relations, political history, comparative religions, ethical or cultural thought, and related site-specific subjects to the mixture. Certainly, computer literacy is a requirement for effective business and political leaders (Vladimir Putin notwithstanding). And the inter-connectivity of the Internet-based global economy, plus product expectations of the global society, require expanded economic, scientific and social knowledge of executives (Friedman 2005). The wake-up call for business schools is that interdisciplinary learning is among the reasons liberal arts graduates are now *very* marketable in business, today. (Giacalone 2004 et al)

CREATION OF SOCRATIC STUDY FOR UNDERGRADUATE BUSINESS

There is a common presumption that Socratic study is simply the purview of private liberal arts colleges and should be dismissed as impractical for business schools. When one moves beyond that presumption, there is not much doubt that students in virtually every walk of life will benefit from an interactive, collaborative relationship with a teacher and other students (Lawrence 2007). That includes business school management students.

Socratic study, officially (from The Encyclopedia of Philosophy 1972), is a single student or a very small group of students interactively considering or discussing a subject under the guidance of a professor (interactive being the important word). There are three or four types of Socratic study which probably fit within a business school model: (1) ***independent study***, is where a student completes a course or does independent research under the guidance of a professor, which generally results in a significant research paper; (2) an ***internship*** where a student works at a company (hopefully with an executive as a mentor) and has a writing requirement for course credit which describes and evaluates the work experience; (3) a ***seminar*** which is a small interactive class which may use number (4): ***simulations***. From my experience there are often student-driven ***mixtures,*** which is one of the reasons I later propose that Socratic study in a business school be student driven**.**

The Quick Starts and the Operational Planning

Following is a framework of ideas for starting a Socratic program and the sequential components, first, for a traditional and then non-traditional program for Socratic study within a business school. Though thorough academic and financial planning can be done to start a Socratic program, my observation is it is better to launch a program with brief preliminary planning and experimentation, using one or more of the following quick-starts as the foundation.

The first quick start for a Socratic pedagogy system is to use single subject seminars and round tables, with student clubs including fraternities and sororities, athletic or other teams, honors programs, international or entrepreneurship clubs or any other similar venues as the Socratic group. With the addition of a professor and an academic subject, Socratic pedagogy happens.

A second quick start is to offer a relatively unstructured but limited traditional plan with one or more volunteering professors where the subject for the study follows his or her research. The carrot for the students is additional credit hours and a direct relationship with the professor. A probably carrot for the professor, of course, is research help.

A third quick start is to enhance corporate internships so they become Socratic learning environments. (This is also discussed at some length later.)

As noted above, a fourth quick start can be to add student case simulations into seminar-sized upper division courses. (This is discussed at some length later in ***(2) The Non-traditional Methodology***.)

From these experiences a more comprehensive formal academic strategy can be formulated. That includes identifying the course or subject areas, enhancing the quick starts that have been tried as the knowledge-base for what works and what doesn't, and creating a methodology for student application and participation. Because most academic institutions have
a penchant for committees, a selected committee of faculty and students, with an administrator or two can determine (1) what the strategy for using independent or Socratic study should be at the school; (2) what the educational outcome should be within the university curriculum system; (3) what subject-fields should be considered; (4) the willingness of faculty to teach in that venue and what the criteria should be; (5) the efficiency/financial issues; (6) the student profile as it relates to Socratic study; (7) what the criteria should be for the admission of students to a Socratic program; (8) anything else which is considered relevant.

Certainly the academic institution must have a commitment to the delivery of Socratic study. This perhaps seems obvious, but it is not always the case: business schools have differing C*ore Competencies* (Hamel and Prahalad 1996) and in general their educational objectives differ significantly from liberal arts institutions. So Socratic study

needs to fit--and what works for one institution may not work for another. In any case, for private business schools with a smaller faculty-student ratio, it may be easier to integrate a Socratic study program for undergraduate business students.

Our experience for independent/Socratic study at Daniels College of Business (which is private) has been a relatively unstructured but fairly active program. It is mostly based on the needs or interests of students either needing an unusual number of credit hours to graduate, having unique research interests, or who find a good educational internship. *So it is essentially student driven, which, as noted below, is an important success key*. In our case, students can receive 2-4 extra credit hours for an independent study or elective program. The chosen professor with the department chair and under some circumstances the dean must approve the student(s) application. We don't yet have an "official" Socratic study program for undergraduate students, but many students request and have benefited from that type of study. And there have also been Socratic relationships among students and a professor where an upper level class is small and the result is an interactive relationship among the students and professor. So an unstructured *ad hoc* program does work. But from my observation a more structured program would enable more students to participate.

1) Planning Considerations for a Traditional Program

I have separated my thoughts on planning considerations into eleven sections:

(1) Admission to a Socratic or independent study program should be *student* driven. Students either individually or in teams apply, certainly based on encouragement by professors who know them, or are their advisors (see Armstrong, et al 2004). The written application should be reasonably comprehensive including significant detail on what the students wish to learn, which is then presented and approved (disapproved) by a committee of department faculty including the professor assigned to (or chosen by) the students. This presumes two things: first that Socratic study is available to all qualified students, but not all will participate. Secondly there is a well-thought framework of alternatives created by the academic institution, but the framework isn't rigidly structured.

(2) The committee approval should have articulate measurement criteria for the students as well as a reasonably detailed subject-matter framework. This is important for students and the professor, especially if students propose a mixture of the Socratic study venues. Subjects can include a more intense look at the content of a regular course, research into an area of current or new interest, cooperative research connected with research being done by the professor, or a connection with internships which apply concepts (etc.).

(3) There should be several motivations for students to apply. Obviously the first is participation in a premier educational opportunity. But others might include the availability of more credit hours, such as 4-5 rather than the common 2-4 per course, the possibility of the Socratic study being an honors project, the chance to meet with the professor in a relaxed conversational environment once a week (from my experience a great motivator), the possibility of a letter of reference for graduate school or a future employer, written by a professor who has really gotten to know the student, and finally, following number one, student excitement about more intense exploration of a subject (Peterson 2009).

(4) Evidence from student driven Socratic study shows it should mostly be interdisciplinary, but in a business school that should not necessarily be a requirement (Bowen 2012-2).

(5) Connecting students with a compatible professor is perhaps the most fundamental key for the success of a Socratic study program. This essentially is psychological profiling (knowing that the word is politically incorrect). But the colloquial word is Achemistry@. A cordial, caring and perhaps mentoring relationship between professor and student always wins. Student productivity will be profound. Though other factors are important, as student academic strength, a relatively unstructured interaction among the students and the professor and the egalitarian need for everyone to be part of the planning strategy, the right chemistry is critical.

(6) The professor and student(s), at their first meeting, should collaboratively establish and agree (on paper) what is expected of the student(s), including time-lines and production of research reports or other assigned academic activity. This makes the student(s) a Apartner in the enterprise@ (Ferris 2002). I used the word "collaboratively" above to underscore that an authoritarian set of requirements from a professor (or school) generally voids one of the basic values of Socratic study: *egalitarianism*. Yet student plans and activities must be *guided* by the professor,

following the institutional framework, to ensure the Socratic study fulfills institutional academic requirements (Ferris 2002).

(7) From my perspective, writing by the students should be an important part of independent or Socratic study. There are many ways where this can be achieved. One example is having students deliver a brief paper discussing a relevant study topic to the professor at each weekly meeting, which effectively becomes an agenda for that week's conversation. That enables the student to think cognitively and organize his or her thoughts on the subject matter. But long research papers discussing a major thesis should, in my opinion, be a characteristic of Socratic study at a business school. However, the writing assignment due dates should be adjusted based on other student writing assignments--as late in most quarters our students generally have 3-4 long research papers plus case presentations due in other classes. An example of how this worked: a student completed a tutorial/Socratic research project which I guided (yes, *guided*) several years ago, and wrote a nearly publishable 108 page book. Since she was taking 16 other credit hours, I simply adjusted the due dates for book sections to coordinate with her other academic due dates. That reduced the stress, and resulted in a splendid product.

(8) Student-professor meetings, which I have called "conversations" with my students, are commonly held weekly for 1-2 hours, though their length can vary significantly. Socratic discussions can and should be wide-ranging—and are often lively, without venturing far from the key subject issues. William Riker, the professor noted in footnote #1, would occasionally have all his tutorial students meet for dinner in a quiet dining room at the student center, and the discussions would last far into the night.

(9) The weekly meetings, especially if there are several students, should be in a comfortable private/quiet place such as a conference room or a back table in the student center. This allows both professor and students to concentrate on the discussions without interruption. A professor=s office is <u>not</u> a good place for a meeting: it avoids the egalitarian nature of Socratic study. And office (or cell) telephones are always a pejorative disruption.

(10) To guide a Socratic and perhaps interdisciplinary discussion with a bright undergraduate students who, at the weekly meeting have researched and delivered a cognitive paper, means considerable teacher preparation. Socratic discussion requires good questions by the professor and thus a profound knowledge of the specific subject matter the student is researching. For a professor to be effective as an egalitarian member of a Socratic study relationship, preparation time simply must be part of the commitment, regardless of the underlying knowledge a professor may have on the subject. This also means that students should not be expected by the professor to have identical venues of study. There may be many parts a subject area which can be researched and students should have the opportunity to examine them. One of the most successful Socratic study programs with which I was associated several years ago, was the coincidental interest of three students in the same case but from three different perspectives. The resulting collaboration among them (with me really as a guide) was a very interesting bit of research which resulted in a great and very lengthy thesis. And our weekly meetings often became marathon meetings of mutual education, ending late in the evening after (far) too many cups of coffee.

(11) Independent or Socratic study at a business school should not be elitist, but there clearly are students who will not benefit from that additional academic burden. Academic excitement and curiosity by the student are the quintessential reasons for Socratic study (Giacalone 2004). Thus the earlier suggestion that Socratic study should be student driven, within a framework established by the academic institution.

(2) The Non-traditional Plan: Using Simulations for Socratic Study

A second and less-traditional system is to use case simulations in classes that have 20 or fewer students. Simulations can enhance traditional Socratic study because they introduce role playing. Role playing creates a fascinating collaborative, intellectual—and at times emotionally competitive interplay of students, always guided by a professor, which makes it fit Socratic pedagogy. Let me describe how it works:

A course where simulations have been used is my alternative dispute resolution (ADR) course which teaches the methodologies of negotiation, mediation and arbitration to resolve business disputes or conflicts. ADR derives from a contractual agreement among the parties for contract disputes, credit card or banking disputes, securities transaction disputes, construction disputes, child support (divorce), automobile settlements, supplier or customer disputes, etc. ADR is taught in some law schools, bar association continuing legal education programs, but seldom in business schools--though using ADR is an effective way of resolving most business conflicts.

The ADR processes are nearly always face-to-face, and the emotional and strategic interaction among people at ADR hearings is significant and thus need to be incorporated in the teaching process. That is best done by having students actually play the roles of participants.

When I started teaching ADR, there were essentially no cases which I could use to have students simulate an ADR hearing. So I started writing them which now include three negotiation cases, a full simulated mediation and a full arbitration hearing which is actually the third part of the mediation case (Bowen, 2008 to 2013). These cases divide the class into teams: the first negotiation case is a small company acquisition and students are divided into the interest and professional advising groups; the second negotiation case is an internal corporate dispute and the students are similarly divided; the third is a simulated municipal hearing; for the mediation one student is assigned as mediator and other students as conflicting parties; for the arbitration, one student is assigned as arbitrator and the remaining students as conflicting parties and their professional aids. (Bowen 2012). Depending on the size of classes there may be two or more identical simulations going on at the same time.

What makes this a Socratic activity? I use MBA candidates as graders, who also do an excellent job of coaching the students. I also both grade and coach. After the ADR activity is over, we do a lengthy de-brief, where the coaches, all students and I discuss what went on, what worked, what didn't and how closely the session or hearing related to the ADR concepts which students learned prior to the simulation.

Does this work for other courses? I think so: I use simulations in my HRM course, one of which is a carefully scripted corporate executive job interview with a fictitious company that has had "ethical failures" which are public knowledge (also with MBA candidates as grader/coaches). [See Bowen 2010].

So following the analogy, there are several ways to "skin the cat", a little innovation is always useful in creating new ways to teach a subject. The key for simulations is to create a learning environment where students and the professor mutually arrive at a solution through discussion or role playing. That obviously requires pre-establishing a classroom environment where students know each other well enough that they are comfortable collaborating with or competing with each other (Barnes 2013).

MENTORSHIP AS PART OF SOCRATIC INTERDISCIPLINARY EDUCATION

There is a key related component to interdisciplinary and Socratic pedagogy: *mentorship*. Mentorship can enhance the effectiveness of Socratic study and the result may well create an inspired learning environment. The result can also be a life-long source of inspiration and energy for a graduate who later becomes an executive. And mentorship creates a superb environment for interdisciplinary and ethical thinking (Peterson 2009; see also Footnote 1).

What is mentorship? It follows a caring relationship, usually by an older person toward a student. It is generally non-confrontational and though there are famous examples (noted below), business executives who received mentored Socratic study often described it as having a key effect on their management strategies. Steve Jobs, for example, noted that his drive for perfect product design and technology integration derived from his boyhood, watching and learning from his mentoring step-father, a wood-worker, who noted that beauty and perfection of all parts of a product should be the objectives of a competent craftsman (Isaacson 2011). And of course the three most famous historic examples are Abraham Lincoln (Goodwin 2005), Clarence Darrow (Stone 1941) and Robert Owen (Cole 1953). Neither Lincoln nor Darrow went to law school; both learned the law by independent study with a mentor, who was a family friend that happened to be a judge. Lincoln and Darrow were, of course, among the most important lawyers of their eras and both were notable social reformers. This social reformer / lawyer connection is not a paradox: there is good evidence it follows their mentored independent study (Stone 1941). Nineteenth century British entrepreneur Robert Owen follows the concept as a business executive / social reformer. His mostly mentored (though brief) Socratic education had a great impact on his revolutionary human resources management strategies at his spinning mills in New Lanark, Scotland (Cole 1953). An interesting psychological result of mentorship is the relationship seems to give students an unusual confidence [Barnes 2013].

IS SOCRATIC PEDAGOGY REALLY PRACTICAL OR IS IT COST PROHIBITIVE?

After considering the foregoing strategies, the merits and framework of interdisciplinary, Socratic and mentorship

pedagogy, one needs to look at its practicality and costs from a business
school's perspective. There is little doubt that Socratic study is the most expensive method for the delivery of business (or probably any) education (Fix 2007). The other side of the equation, of course, is it is probably the most potent method to teach key subjects such as leadership, the application of business law, effective personnel management, the dynamics of strategic planning, the application of ethics to business decision-making, business dispute resolution, public policy and perhaps even the value chain (Doh 2003).

The question which business schools must ask is whether the offer of Socratic study, other than simulations, is an effective use of college or university resources and faculty time. Since the purpose of colleges and universities is mostly to educate people (plural), the efficient use of limited resources may not fit Socratic study.

The cost negatives include dealing with large enrollments at many business schools, therefore large classes which make independent or Socratic study an activity which is hard to efficiently offer. Another cost issue is the professorial time which Socratic teaching requires. For a professor teaching a full academic load, plus research and writing, to add preparation and weekly meeting time for a group of perhaps two to four students working on a research project, probably creates an untenable work environment. The added work load for professors also creates a salary expectation and therefore another cost issue. So perhaps Socratic or independent study is best delegated, in business schools, to unusual circumstances as those noted earlier, or situations where a professor can collate funded research projects with students.

Can funding thus be obtained for a traditional Socratic delivery of education at a business school? Perhaps. Let me offer and evaluate some strategies:

The quickest solution, unless an institution has Williams College-like operating funds (Fix 2007), is a specific tuition charge for students doing Socratic study. Unfortunately the likelihood of that being successful is roughly zero—any increase in tuition is problematic for most private and particularly public institutions, and may well create a disincentive for many students who particularly qualify for Socratic study.

One idea which distantly follows the Williams model (Fix 2007): is the creation of a specific endowment, perhaps with the initial backing of a special gift from a corporate CEO who has experienced mentorship or Socratic education. Such gifts are given to academic institutions, and this would be designed to promote a new academic direction. And Socratic pedagogy might also be of interest to private or family foundations, especially if a member has experienced mentorship. If an institution connects the creation of a fund with a well-thought strategy for careful use of the money, the net may be a good foundation for a Socratic program.

There are several strategies for efficiency in Socratic education, and they are worth exploring. The first is to use what I have called the quick-starts. That gets an academic institution into the business of Socratic delivery of education with relatively little initial cost. The second is for the institution to offer small seminar classes for electives and upper division classes, perhaps promoting simulations and class discussion activities. That inherently creates interaction and competitiveness among students and a professor, therefore the Socratic method. Small upper division seminars are efficient for the delivery of business education, in any case. The key is to enforce limits on seminar size. It is often too easy for a registrar's office to add a couple more students to a seminar, then five, and all of a sudden the seminar loses its intimacy and the pedagogy changes. So an absolute lid on seminar numbers must exist for Socratic study to work; a registrar's office cannot be allowed to use the excuse of the economic advantage of adding students.

A third alternative which many business schools use, is promoting many student internships with a cadre of selected companies (Fukami and Olk 2007; see also Papamarcos 2005). In a sense, this might be considered farming out Socratic study, but under the right circumstances it has historically been quite successful and can add mentorship to the study of business. That said, internships can be fraught with problems (Steiner and Watson 2006). The keys to resolving internship problems are, first, students must know the academic expectations of the internship; second, businesses must create an environment where student work activities offer a valid learning experience. (Sitting in an office and answering the telephone or doing data entry is not an internship.) Third, real selectivity plus education of participating businesses on internship expectations is generally important. Fourth, faculty advisors need to monitor and guide the work-learning process; fifth, the business school curriculum needs relevance to properly prepare

students for work-internship activities. The last is probably obvious, but students sometimes aren't able to effectively relate the application of concepts they have learned in business school to the workplace.

Barnes questioned whether internships are really Socratic (Barnes 2013]. This is a valid question, as internships can simply be ways a company obtains cheap or free labor. And control of the student-business relationship may be tenuous for the academic institution. The fundamental way to be certain an internship is, in fact Socratic study, is to strictly follow two of the criteria noted in the foregoing paragraph: faculty and perhaps administrators must monitor the work-learning environment and secondly, there must be real selectivity in the choice of companies.

A fourth alternative is to follow *at the undergraduate level*, what Stanford is doing with its MBA programs (Alsop 2006). According to Alsop, Stanford offers highly specialized individual curricula, including courses which are out of the common spectrum of business, based on student experience, undergraduate education, desires and career motivation. Obviously this is not an inexpensive alternative, but it potentially follows both the interdisciplinary and seminar concepts of business education (see also Grey 2004).

Finally, the use of simulations, especially in seminars or small lecture classes has been surprisingly effective to create the conversational environment for Socratic education delivery. In my experience, it delivers an academic excitement to students which is the foundation for Socratic study. Notwithstanding the fact that I have spent (and spend) time writing (or re-working) the simulations and now spend significant amounts of time on the logistics and grading the simulations, there inherently is no extra cost for this solution. It is simply part of teaching.

CONCLUSION

Socratic delivery of education at a business school is fraught with problems not the least of which is cost. For most undergraduate business schools money may not be as plentiful as at Williams (et al), and at most business schools there are probably more students. And business students may be motivationally different from liberal arts students. Certainly the only way a Socratic program will be successful is with motivated, pro-active student and faculty participation, which at a research or public university also has issues. So to transfer what has been successfully done at private liberal arts colleges to business schools has many hurdles. Finally, if an undergraduate business school has the funds and plans to offer independent or Socratic study, there may be a scheduling dimension for qualified students which, with larger student bodies, can overwhelm a program. It is therefore more difficult to implement a successful Socratic program in an undergraduate business school than it is in the liberal arts, natural sciences, law or music.
And since Socratic study of business requires considerable commitment from faculty yet may not
meet the educational needs of *all* business students, there is a potential ethical issue.

So for the study of undergraduate business, why even bother with Socratic study as an educational delivery system?

The answer is that for the right situation, the right students, the right relationship between teacher and student and the right academic environment, Socratic pedagogy is an awesome delivery of education. There are many modern examples of men and women who have received undergraduate Socratic study which provided an inspirational impact on their lives, and motivated them to high social leadership or to academic, ethical, global or philosophical achievement during their later lives (Doh 2003). So using Socrates to deliver undergraduate business management education follows the high calling of business education in America.

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Name the Game: Teaching Students How to Ethically "Bargain with the Devil"

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ABSTRACT

One of the dominant fears that students (and most inexperienced negotiators) have about negotiations is how to deal with difficult, more powerful, or highly competitive negotiators. A case based exercise is presented that helps students learn how to identify "hardball" negotiation tactics and develop skills in dealing with these tactics. The case debrief and discussion guide includes standard approaches students can take in dealing with difficult bargainers.

Keywords: negotiation, negotiation tactics, difficult bargainers, negotiation ethics, hardball tactics

INTRODUCTION

In teaching negotiations for twenty-five years, I have found that no topic in the field concerns students more than having to deal with negotiators who are highly competitive or just generally considered difficult. The exercise described below is designed to help students deal with this issue. The exercise focuses on first helping the student to recognize the tactic when used and then to identify effective ways of countering the tactic. The exercise is based on a case, "Taken for a Ride," which includes many of the most common competitive tactics. A discussion of how effective negotiators deal with difficult bargainers is included

STUDENTS AND NEGOTIATIONS

Students who are typically inexperienced negotiators usually approach bargaining as competitive or zero-sum situations. When asked at the end of the course for the biggest "takeaways," the most common answer is learning that negotiations aren't necessarily win-lose competitions and that often integrative or problem solving approaches to negotiation leads to superior outcomes. They also come to see that many of their everyday interactions with family, friends, and roommates are actually negotiations.

Nevertheless, having to deal with difficult bargainers remains one of the most daunting challenges facing all negotiators, not just inexperienced college students. We all have to deal with people who we think are unreasonable, highly competitive, seemingly irrational, and who seem to prefer highly contentious and hostile bargaining to the problem solving approach we would like our students to stress (Ury, 1991). The topic of competitive and "hardball tactics" is typically covered briefly in negotiation books. There are good reasons for this. We typically emphasize that most negotiations take place with people with whom we have a long term relationship (family, friends, bosses, subordinates, peers, customers, etc.) and hence should be "integrative." This means that the negotiator wants to do well but wants the other side to feel positive as well because the relationship is important. Furthermore, most textbooks have an understandable bias towards "win-win" negotiations

Nevertheless, as students instinctively know, people they deal with may not have the advantage of studying negotiation and learning about effective negotiations or may simply favor a more difficult approach. While we would prefer our students pursue a more integrative approach to negotiation, we must acknowledge that students must be prepared to deal with other kinds of negotiators. Just as responsible educators, we must teach about ethical negotiations, we would be remiss if we did not also develop skills in dealing ethically with "tough" negotiators and/or unethical negotiators.

Students typically deal with people who have more power than they do (e.g. employers, professors, parents); sometimes students use the term "difficult bargainers" to apply to any negotiating where they are dealing with someone with more power. Dealing with people who have more power is an important skill but this article will focus on tactics most all of us would consider as difficult or "hardball" tactics, many but not all of which are used by people who have more power.

Inexperienced negotiators (including most college students) tend to approach negotiations as competition. While some students' instincts favor problem solving integrative approaches, these students are the exception. This situation tends to make negotiations even more difficult since a competitive approach to negotiation can become a self-fulfilling prophecy triggering behaviors and counter behaviors that make it difficult to escape from cycles of counterproductive bargaining. When the inexperienced bargainer confronts the "difficult bargainer," there is a strong tendency to want to respond in kind. While there are times this may be appropriate, it is very difficult for the student to satisfy important interests when both sides are locked in a competitive negotiation, particularly when the other party is more powerful.

This article will present a class exercise based on a case that includes numerous examples of such tactics. The case is presented in the Appendix along with the "answers." Discussion of ways students can react and deal with difficult bargainers will be discussed.

NAME THE GAME: IDENTIFYING TYPICAL "HARDBALL" TACTICS

There are many tactics used to gain advantage. Typically most negotiations will involve tactics such as anchoring and framing. Negotiators who we might consider "difficult" would use these tactics as well as many others listed below. All this is not to say that these tactics are unethical, although some of them (e.g. Lying) would be considered unethical in most settings outside of a poker game.

An important skill for effective negotiators is to be able to quickly recognize the tactic being used so that an effective and appropriate response may result. Typically we have all developed strategies for dealing with these tactics since we have been negotiating since infancy. But responding depends in part on recognizing the tactic. The attached case is designed to help students develop that skill.

The following list includes the most common tactics used by "difficult" bargainers

- Anchoring , concessions combined with reciprocity ("I will give you $1,000 off sticker because you are a first time buyer),
- Framing ("we should look at it this way….")
- Normative leverage ("this is what everyone does")
- Scarcity tactic (these are going fast)
- Authority (deferred or fake) tactic ("I need to speak with my sales manager")
- Consistency trap ("What if I told you you could have this car for….")
- Good cop, bad cop ("I feel terrible, my manager said I couldn't give you the …..")
- Fake relationship ("because I like you")
- Reciprocity ("I told you I would keep my word")
- Social pressure (all the young professionals…..)
- Overwhelming
- Physical intimidation (Come into my office)
- Lying, bluffing, puffery
- Fake authority ("It's policy"….it's pre-printed)

TAKEN FOR A RIDE: THE CASE AND EXERCISE

The "Taken for a Ride" Case (see Appendix) presents the dialog from a negotiation in which a naïve buyer is confronted with an experienced salesman who uses a number of standard and classic tactics. The case provides an opportunity for students to practice identifying these tactics and think about ways of dealing with them. The Appendix also presents this author's identification of the key tactics recognizing that others may see additional tactics or use different names for these tactics. The exercise can be used in class or as a homework assignment.

Some of these tactics are easily identified such as "Scarcity." (This deal won't be available for much longer.). Students have little difficulty with these kinds of tactics. They have more difficult with more subtle tactics. Perhaps the most difficult and possibly most common tactic is the "Consistency Trap." It is a key tactic in this negotiation. There are a few of these traps in this case, but the most critical one is started in Paragraph 16 and starts with "what if." This is a classic start of a consistency trap. A simple question is asked in which the answer is very likely to be

affirmative. In this case the salesman then asks Julia what she can pay per month. He is asking for her walkaway or reservation price. Like most inexperienced negotiators, she gives it. He then reframes the offer (stretching out the payment years) so that he can state that the monthly payments are within her walkaway. Since she had agreed that an offer below her current payment would be "good," and considering herself a rational and consistent person, she is under pressure to agree with his conclusion. He got her to accept what appeared to be an innocuous premise, and now she is pressured to agree with the consequence of her accepting the premise; she didn't recognize the "reframing trick" he used.

It is also important to point out the salesman's frequent use of high anchor, concession, and reciprocity. He starts with a very high anchor (the MSRP); this gives him plenty of room to make concessions. Each concession creates pressure for reciprocity. Until Julia gives her walkaway in Paragraph 19, the salesman is bidding against himself; she has not given any counteroffer. He is forces to make small concessions, hoping he doesn't give away more than he has to.

It is important to point out that not all tactics used by the salesman are worthy of condemnation. The salesman uses a number of techniques and skills that should be reinforced. He is courteous, he listens carefully to what she says, and he is quite attentive to body language.

Students should also be asked about the mistakes that Julia makes here. Probably the most crucial here is the lack of planning. She had not used any of the abundant on-line research, both in terms of what is reasonable to pay as well as the plentiful advice on line about sales tactics. She apparently never sought the help of more experienced buyers. She might have brought a more experienced buyer with her. She doesn't research her options; she doesn't establish a walkaway or reservation price; she doesn't identify a target price. She readily accepts charges for items (e.g. dealer preparation) that more savvy buyers would successfully refuse or would at least seriously challenge. She lets emotions cloud her judgment. For example, she was under no obvious emergency to buy the car that day. Why did she do it? It was a combination of her lack of planning, her emotions, and his tactics interacting with her emotions. Many of the salesman's tactics are quite transparent. She was not ready for them.

The case poses a number of ethical issues that provide a good opportunity for discussion. Are the salesman's tactics unethical? There is disagreement here among students as there would be among all of us. Many students find the salesman's tactics unethically manipulative and involve taking advantage of a naïve consumer. The salesman does both outright lie ("these cars are going fast") and in other cases "stretches the truth" by implying conclusions that should be challenged, but the uninformed buyer doesn't. On the other hand, some would argue that like poker, the car buying setting is well known to involve these tactics and it is up to the consumer to become educated. Not all feel she is a victim.

DEBRIEF THE CASE: TACTICS FOR DEALING WITH DIFFICULT NEGOTIATORS

The salesman in the case is far from the most difficult bargainer we are likely to face. While he engages in manipulative and at times unethical practices, he is courteous, generally non-intimidating; he probes for her interests and listens carefully. Nevertheless, the case can be used to discuss tactics and approaches for dealing with really difficult bargainers.

The first thing that negotiation experts suggest is thinking carefully before labeling the counterpart as "difficult" or "irrational." And think particularly hard before walking away or making concessions that shouldn't be made in response to perceived intimidating behavior. We have all found ourselves acting angrily and reacting inappropriately to pressures and stresses. When dealing with a person's difficult behavior, we must acknowledge that we will likely be unaware of that person's motivations or pressures that may have nothing to do with us or the negotiation at hand.

Furthermore, when we are unable to meet our interests in a negotiation, we often deal with our frustrations by attributing the problem to the other person or impute negative motives or personality traits to that other person. We need to recognize our own biases and motivations. (Bazerman, 2005)

Many inexperienced negotiators feel they only have two options: either give in or fight and play the same game as their difficult opponent. The experienced negotiator knows there are other options**.**

TACTICS FOR DEALING WITH VERY COMPETITIVE NEGOTION

It is most critical to be prepared. This involves being clear about one's own interests and trying to identify the counterpart's interests. It also includes knowing one's walkaway and target. It is important to plan for integrative negotiations but be ready in case the alternative is called for.

If we are involved in a "difficult" negotiation, it is important to think about what role we might have played in the conflict and be willing to apologize if appropriate. We need to understand ourselves including knowing what our hot button issues might be.

Malhotra and Bazerman (2007) suggest distinguishing among different kinds of hard bargainers: Each might call for a different kind of response. For example, it might help if you understand that one's behavior may stem from very legitimate concerns

- "reluctant" - forced to be tough by constraints you don't know about;
- "accidental" - drawn into a tough stance by overconfidence, unintended escalation of conflict, and emotions;
- "intentional"- some people feel tough bargaining is most effective and have found it to be successful

Try not to meet hostility with hostility and aggression with aggression; maintain your emotional control; don't let the other person's attempt at emotional blackmail draw you in; sometimes a soft low voice can be very effective (like your Mother used to do). The following are some tactics effective negotiators use in dealing with difficult bargainers

- Try to negotiate the negotiations: try to agree on standards of behavior
- Identify the problems you have with the other's actions or points: "I may be wrong, but some would question…."
- Try to change the game by "reframing" to the PROBLEM, rather than confronting each other ("You have this problem and I have this problem; let's see if we can solve both")
- Try to search for common interests; be aware that your counterpart may have pressures, motivations, incentives that you are unaware of; try to find them; see if you can involve the other person in the problem solving effort; try to give choices (would you rather…..or…..")
- If there appears to be just one issue, try to add other issues that might provide trade-offs
- Repeat (or rephrase) what the other is saying to slow the pace and gain some time
- Try to maintain good negotiating practices and etiquette
- Listen carefully; listen to what he says and what might be the interests behind it; step to his side; make sure he knows you have listened; acknowledge his points
- Probe and Ask questions…"why" or "why not"; focus on some of the earlier points or premises rather than his or her final point
- Break the cycle/reduce the pressure: If the other is engaging in really outrageous behavior (e.g. tirades, escalating demands), here are some tactics that can be successful
    - Focus on the first demand and ignore the others
    - Spill a glass of water, drop something…break the pattern…take a break; go to the balcony
    - Propose postponing until later when "we both have the facts…."
    - Change the players; seek a third party
- If the other person takes an absolute unacceptable position
    - Appeal to new facts or conditions; try to get agreement to search for new facts, standards
    - Change the players and/or appeal to a higher authority; see if there is a way to work around the person if necessary and possible (Shonk, 2008)
    - "build a golden bridge" (Ury, 1991); try to figure out a way to help the other save face
    - Present multiple options and multiple proposals

Try to maintain a positive attitude ("I'm confident that we can come to a fair agreement. You don't have to like the other person but be fair, truthful and trustworthy (but firm if necessary) no matter how provoked and pressured you are; maintain your high standards. But sometimes you have to "just say no"; be ready to walk if necessary.

FOLLOW UP ACTIVITIES

This exercise has been found to be very effective in developing the skill to "name the game." A similar kind of dialog is given later in the course and students typically are much more skilled in identifying tactics. Of course, this is on paper; it is much harder in real time.

Other activities can build on this. One powerful activity is to have two students negotiate a case up front (fishbowl) that the rest of the class has just negotiated. Then, when the instructor sees one of the tactics being used, she can stop the role play and ask the class what just happened. This also provides the opportunity to ask the role players what was going on in their minds, particularly, what they were really thinking.

Since most commercial films deal with conflict, they also deal with negotiation in one way or another. Numerous clips from popular films provide opportunities to test students' abilities

CONCLUSION

Dealing with difficult negotiators is challenging for all of us, not just students. But students can learn techniques and skills to effectively deal with such negotiators, even convincing counterparts to use far more productive integrative techniques. A key step in dealing with difficult bargainers is to identify the tactics that are being used or to "name the game." This enables students to quickly draw on response strategies that they have learned and practiced in the past to deal with that particular tactic. Negotiation will always involve improvisation, but like jazz, it should be improvisation based on a solid structure built through understanding concepts and continuous practice.

Appendix: Taken for a Ride	
1. It was a beautiful summer day, typical of early June in Cleveland, when Julia Barnes pulled into Lee Road Chevrolet. She came directly from her service station, where the mechanic gave her twelve year old Chevy Cavalier two to three months left to live. Without much thought, she got out of her rusting heap and began to peruse the new cars. Within seconds, a nicely dressed, middle aged man approached her, introduced himself as Ed Wargo, and asked, "What can I do for you today?"	- building rapport and trust (physical and verbal) - creating reciprocity
2. "Well, I just started looking because my car is about to fall apart. I'm not really sure what I want," Judy replied honestly.	Honesty creates trust (or vulnerability) Probably demonstrates her inexperience as a negotiator
3. Seizing the opening, Ed whisked Judy away from the practical into the sporty. He showed her the red Crystal GT, a little sports coupe with a not-so-little price. "This baby's loaded: sunroof, A/C, power steering, power brakes, AM/FM Quad stereo with CD, magnesium hubs, full options package. They've been very popular with your "young professional" customers," he added, knowing full well that there would be a $400 bonus waiting for him if he unloaded this overloaded model that had been stuck on the lot for weeks.	Normative leverage (young professionals) Puffery Salesman watches body language carefully
4. Judy could hardly contain her excitement. "I've always wanted a car like this!" she exclaimed, her eyes reflecting genuine enthusiasm.	Showing early commitment
5. "Hey, take it for a test drive and tell me what you think." Ed tossed her the keys and sat back to prepare his strategy.	Building rapport commitment Trust (keys) Reciprocity
6. Judy returned, her hair tousled (she had obviously tried out the sunroof) and looking as if she had genuinely enjoyed the drive. "How did you like it?" Ed asked, knowing full well how the Crystal would outclass a 1987 Cavalier. "Nice…really nice," she responded, "but it's a little more than I need." It was obviously wise to guard her true feelings. "How much is it?"	Consistency tactic (how'd you like it?) Her commitment is building
7. There, the question had finally been asked. "The sticker price, including all options and dealer preparation, is $19,750." Ed noticed the immediate slumping of her shoulders. "Of course, there is a $1,000 factory rebate or 2.9% manufacturer's financing available." She was still looking at the ground. "And you do have a trade-in. Let's have a look!" With that, the wind was returning to her sails, and something of her previous smile returned to her face.	Anchoring very high (his first offer) Concession which creates reciprocity Creating options for "mutual gain" (trade in)
8. "Not too bad. I think that we could give you $1,000 for it. Of course, I'll have to have my "trade-in specialist" look at it. Can I give him your keys so he can check it out more closely?" Ed asked. Judy handed them over and they walked back over to the Crystal GT. This time Judy looked more closely at the sticker. "I know what Suggested Retail Price, options, and rustproofing are, but what are the charges: $300 for A.D.M. and $200 for N.D.A.?"	High fake offer for trade in builds commitment Sets up good cop-bad cop routine with trade in specialist Note Julia still hasn't made a counteroffer

9. "Well. A.D.M. is a dealer prep charge; for instance, cleaning and checking the car out," he admitted, acting a bit annoyed at such an obvious question. And the N.D.A.?" Judy persisted. "That's the National Dealer Advertising charge, for those ads on TV. Advertising is very expensive for us, you know.	Fake emotion (showing fake anger) Normative leverage (implying she should know about the Cost of advertising
10. Judy paused a minute. $19,750 was a lot of money for her budget. Finally she began to speak, "even with the trade-in, the price is ….." Sensing that the intoxicating new-car aroma was beginning to wear off, Ed interrupted, "I'll give you the rustproofing, fabric finish, and floormats at cost. That's $300 off, only $17,450 for the car after trade-in."	Further concessions hoping to lead to reciprocity He carefully watches her reaction and body language She still hasn't made a counteroffer
11. "I don't know," Judy said, with Ed's arithmetic going by pretty quickly.	Still no counteroffer; he is bidding against himself hoping to lower slowly until she bites
12. "Come back into my office and we'll work this out." With that, Ed led her into a small office near the rear of the dealership. He spent the next fifteen minutes convincing her that she could not find a better deal on such a popular car.	Physical coercion (uncomfortable office) Lying ("better offer" "popular car)
13. Suddenly, Judy interrupted with conviction. "I really don't need the magnesium wheels, quad stereo, or most of the options." Ed was surprised by her sudden assertiveness. He explained that the car was a package and that they just couldn't take the options out of it for her. Judy was beginning to feel claustrophobic. With no windows and the door shut, she wondered if she would ever get out of this small office. With a mental start, she realized that even if she escaped, she no longer had her keys.	She tries counteroffer He probably lies about removing some options Physical discomfort
14. Seeing that he wasn't getting anywhere. Ed decided to go for broke. "Since you're such a nice person, and I would like to help you out, I'll give you the wheels and the stereo at cost if you take the car today. That's another $400 off, $2,700 off the sticker price, or $17,050 with your trade-in."	Fake relationship ("nice person" Concession/reciprocity Still bidding against himself
15. I'm not sure that I can afford that much," Judy responded.	But no counteroffer
16. What if I told you I can sell you this car for less than you are paying monthly now?	Consistency trap ("what if….") he will later reframe the Offer to fit his hypothetical offer
17. "That sounds pretty good," responded Judy.	She falls for the trap and answers "yes"
18. How much can you spend per month on your car?" Ed asked.	Asks for her walkaway (reservation price)
19. Under $450."	She gives it assuming she isn't bluffing Finally she makes an offer although she doesn't know it
20. Well, Ms. Berne, I will keep my word. All we have to do is stretch the payments out to four years and that makes it only, let's see…$437 a month. We did it. What do you say?" As Ed leaned over his desk awaiting her response, Judy began to reconsider buying a new car, especially without shopping around first. She got up to make her escape and to thank Ed for his time when he blurted out, "Are you a first-time new car buyer."	Closes the trap ("I will keep my word?) He reframes to get "below" her walkway Reciprocity ("I will keep mu

	word"); now she is under Pressure to keep her word which was "yes" earlier
21. "Why….yes," Judy answered.	Consistency trap (he knows the answer)
22. "I almost forgot," Ed announced, "I can offer you $300 off invoice just to get your business and begin what I'm sure will be a long term relationship with this dealership. Even if we don't make anything on this car, we're in it for the long haul. This will bring the payments down to $429. You can't beat that'; the car you want at your price. But we have to make the deal today. There has been a lot of interest in that particular car and I'm not sure how long it will be around." That was just enough to halt her exit; besides, at this point, Ed was really trying to help her out. Judy took the deal.	Lie ("I almost forgot") Concession-reciprocity Puffery Scarcity tactic ("I'm not sure how long it will be around)
23. "Just let me clear this with my sales manager," Ed explained as he left the room. When he returned, he was solemn. "He didn't go for it. He got after me for getting carried away, especially with the new buyer discount. Bottom line, he says you can't have the new car buyer discount and the options at cost." Judy was angry with the sales manager, but empathized with Ed's predicament and agreed to his suggested solution of giving up the magnesium wheels. After a quick check, Ed indicated with evident relief that the sales manager had accepted.	Deferred authority or fake authority Good cop bad cop
24. Now it was time for the paperwork. Ed began by filling in the sales discount. Judy noticed an $80 processing fee, but she did not mention it because it was printed on the form and therefore must have been a standard charge. She also noticed the $120 "etching" fee. Ed filled in the proper price, $19,870, and the $1,000 factory rebate, but then wrote in a mysterious $105 charge. "What's that?" Judy inquired.	Nibble
25. Oh, I forgot about that. That's the paint sealant we put on all our cars to protect our customer's investment," Ed answered.	Lie ("I forgot") Puffery
26. And what is the etching fee?	
27. That's for theft protection; it gets you a major discount on your insurance	Probably a lie Fake advantage
28. Judy responded, "I think I remember my employer having a program last year where the police come to the parking lot and do the etching for $15.	She counters
29. Ed countered, "it's pre-printed on the sales sheet here; we provide the service and it's standard; all our customers get it. Your insurance company needs this.	Fake authority ("It's pre-printed") Lie..puffery Normative leverage ("all our customers") (fake inference) Implication is that it is non-negotiation
30. The next line was the trade-in value of which Ed had to check with his trade-in specialist. Ed left the room and returned with the specialist who stated that the old Cavalier was in worse shape than Ed had thought and the dealer could only offer $500 for it and would probably lose money even at that price. Judy though back to the morning. Five hundred dollars was close to what her mechanic said it was worth, so she had to agree.	Deferred authority Good cop bad cop

31. Ed said that he felt terrible. "I thought that we could get more for it, but he's the expert." Ed added, "You know, with a new car like that, you really should have an extended warranty. I have a 6 year/60,000 mile warranty available on the Crystal. We usually sell it for $750, but since I was wrong on the trade-in, you can have it for $500." Knowing that she would have the car for a long time (the payments alone would last four years), she took him up on the offer.	Nibble Fake concession/reciprocity
32. "Now just take this over to the finance department and I'll meet you out front with your new car. It's been a pleasure." With that, Ed smiled and led Judy to the finance window.	
33. The finance manager looked over her papers and asked Judy to sign on the dotted line. A last check of the forms revealed a $230 life insurance fee, which would pay off her auto loan if she died before she could. Angered by this late addition, Judy thought back over her three hour ordeal and, not feeling too well, reasoned that life insurance might not be such a bad investment after all. So with a sigh of relief, she signed the papers not knowing how much she really paid for the car or whether or not she got a good deal.	Nibble

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Back to the Future: Experiencing History to Demonstrate Teambuilding Methods in an MBA Class

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ABSTRACT

AACSB criteria established in 2013 require that curricula "actively engage students in learning." While some instructors have utilized experiential methods in curricula for many years, the new standards provide further validation of experiential methods. As part of an MBA class in teambuilding and leading teams, the first author has developed a unique, weekend-long teambuilding workshop that fits with the military tradition of the institution. The workshop involves students in a variety of exercises that illustrate pooled, sequential, and reciprocal interdependence among teams, as well as implicit ways to develop trust and open communication among team members. The workshop combines aspects of "The Great Race" and "Apprentice" reality TV programs into a combat game with an historical perspective peculiar to the location and history of the college. It serves as both a teambuilding exercise and a way to stimulate ideas that participants might develop for teambuilding in their workplaces. As both an out of class and off campus experience, it ranks high on the scale of engagement for experiential activities.

Keywords: teambuilding, teams, experiential exercise, interdependence, communication, accreditation, engagement

INTRODUCTION

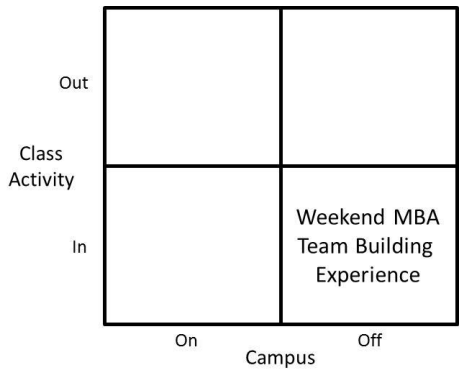
AACSB criteria established in 2013 require that curricula "include approaches that actively engage students in learning" and provide "a portfolio of experiential learning opportunities for business students" (AACSB, 2013a, p. 36). Since various experiential methodologies have been available for many years, the new standards are welcomed as further validation of these robust teaching and learning methods. While various experiential education associations exist, one in particular focuses upon the business disciplines. The Association for Business Simulation and Experiential Learning (ABSEL) was established in 1973 and makes publicly available over 40 years' worth of its conference proceedings containing research on experiential methods (see www.absel.org). A recent meta-analysis evaluated every article published in the ABSEL Proceedings for 40 years and concluded strong support for the idea that students learn well through experiential methodologies (Burch, Batchelor, Heller, Shaw, Kendall, & Turner, 2014).

Experiential learning is the "process whereby knowledge is created through the transformation of experience" (Kolb, 1984, p. 41). As with any pedagogy, the expectation with experiential methodologies is that students will learn better from engaging the concepts in ways suitable to the material being covered (Bonwell & Eison, 1991; Morgan, Martin, Howard & Mihalek, 2005). The benefit of experiential learning is also thought to extend to the process of skill development in ways that impact future performance (Leong & Crowley, 2007), such as learning in other courses. Historically, AACSB promoted students being engaged in their learning experience (Biggs & Gulkus, 1988; Boscia & McAfee, 2008). Now that Standard 13 has become a reality, the use of experiential approaches is even more appealing. Although the relationship between performance in experiential exercises and actual learning is not always empirically evident, both instructors and employers can find it useful to differentiate students based upon degrees of performance (Bernard, 2004). In addition to the many good reasons for employing experiential methods, Lord and Newson (1977) promote the opportunity to realize "pedagogical pluralism" (Windsor, 1984), while retaining traditional coursework through various complementary teaching methods.

While the new AACSB standards make clear the need for engagement through experiential activities, the type of activities are not specified. The intent of the new standards is to drive innovation, engagement, and impact (AACSB, 2013b), but again, the relationships between these themes are not specified. Fekula and Arnold (2014) proposed both relationships between these three themes and a scheme to align experiential activities with Standard 13. They argue that both the context of the experiential exercise and the degree of innovation will influence student engagement, which in turn impacts the student's portfolio of experiences. In this context, the cycle of innovation, engagement,

and impact occurs within the student's learning experience. Other interpretations, such as innovation and impact on the local community are also valid, but beyond the scope of the course pedagogy. In order to align experiential activities with Standard 13, a two-by-two matrix shows that experiential exercises can be plotted according to class-related activities along one dimension, and on or off campus along the other (Fekula & Arnold, 2014). The matrix also suggests that the most engaging experiences will be those that are both class-related activities and off-campus. Note that a class activity need not be in the classroom, but merely done as an official part of the class requirements. As part of an MBA class in teambuilding and leading teams, the first author has developed a unique teambuilding experience that includes a weekend-long program held off campus.

Figure 1: Experiential Context: Class and Community (adapted from Fekula & Arnold, 2014)



Even though our graduate students go through a typical evening MBA program, the teambuilding workshop aligns with the military tradition of our institution. Our undergraduate cadets go through a four-year military college experience, so the campus reflects a military tradition both procedurally and in its physical appearance. Although graduate students attend classes on campus in the evening, they do not partake in any of the military activities. The weekend-long program gives them the opportunity to experience some of the military structure, but does not imitate the experience of our cadets.

THE TEAMBUILDING EXPERIENCE

The main objective of the experience is to involve the students in a variety of exercises that illustrate pooled, sequential, and reciprocal interdependence among teams (George & Jones, 2012; Saavedra, Early, & Van Dyne, 1993), as well as implicit ways to develop trust and open communication among team members (Lencioni, 2002; Thompson, 2011). The workshop involves aspects of "The Great Race" and "Apprentice" reality TV programs, as well as a combat game with an historical perspective peculiar to the location and history of the college. It serves as both a teambuilding exercise and a way to stimulate ideas that the participants might develop for teambuilding activities in their workplaces. The efficacy of outdoor teambuilding exercises is argued by Williams, Graham, and Baker (2003), accompanied by empirical evidence that teambuilding exercises can improve communication (Amos, Hu, & Herrick, 2005). Additionally, as team leaders change, the exercise gives the participants opportunities to serve in leadership positions. This latter experience can contribute to the development of leadership capabilities in individuals (Bell & Smith, 2010), but this is beyond the scope of the objectives of the experience.

The experience begins on Friday afternoon after work hours and ends on Sunday at noon. It takes place at a location about a two-hour drive from campus. When the students prepare to leave town for the exercise, they are informed that the governor of the state has organized the militia to repel an army of invading terrorists, and to report to the offsite location for training. It is only when they arrive at the location that they learn they have been transported in time back to the 1860's. Almost immediately thereafter they are involved in group activities. They learn how to set up camp using historical-period tents, march as units, fire muskets and cannons, and engage an enemy force. They undergo training that serves to mold them into functioning teams, and to illustrate the kind of teambuilding activities that they might create for the teams in their own work environment. During the process, enough time is allocated for the participants to exercise creativity in the performance of their functions as a team. This latter point is important because it emphasizes the flexibility of the process, which is essential to the teambuilding experience. Although the participants need training in the various aspects of the functions they will perform during the exercise, how they go

about that process and how they achieve the objectives set before them depends upon the functioning of their team and not the training associated with the particular activities.

This paper lays out the premise for the weekend training, illustrates the activities, and discusses how this activity applies to teambuilding.

THE EXERCISE PROCESS

What Students Know Beforehand

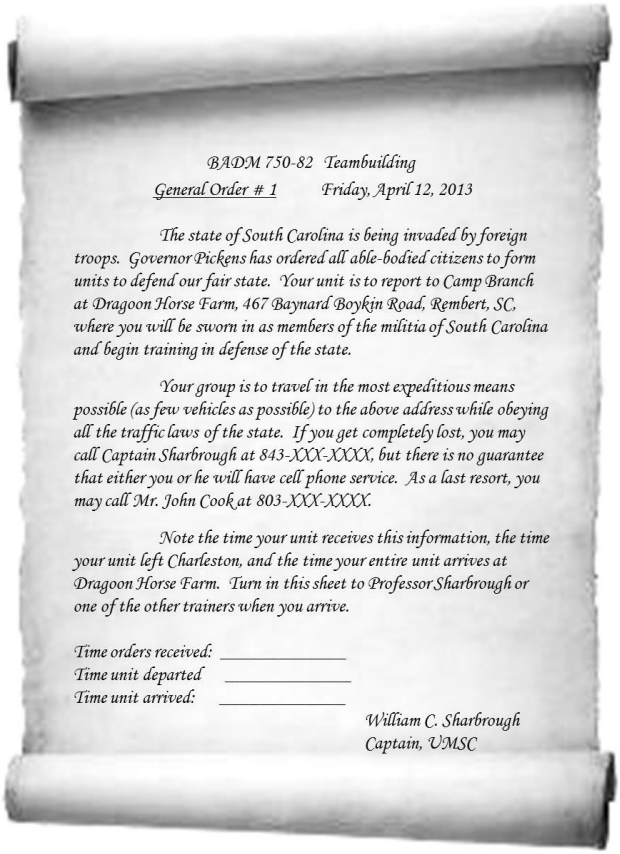
Students are alerted to a requirement to attend a weekend-long "camping trip" as part of the class before the semester begins. They are informed of the date and the basic equipment needs, but the exact nature of the weekend's activities are not revealed. Students are also grouped with classmates in three or four-person teams that prepare class presentations on various topics during the semester. These presentations stress interaction and demonstrating or participating in class teambuilding activities in the classroom. Later in the semester, the class is divided into seven or eight-person teams that will function together during the weekend exercise.

Students are informed that they must drive together approximately 100 miles to the site, leaving as soon as possible after work on Friday, in as few vehicles as possible, and arriving as a team. They are also provided with a packing list of essentials for the weekend.

Day 1: It All Begins

On the Friday of the designated weekend, at noon, each of the teams is allowed to pick up an envelope with the address of their destination. A sample copy of the "order" found in their envelope is shown below in Figure 2.

Figure 2: General Order #1



BADM 750-82 Teambuilding

General Order # 1 *Friday, April 12, 2013*

The state of South Carolina is being invaded by foreign troops. Governor Pickens has ordered all able-bodied citizens to form units to defend our fair state. Your unit is to report to Camp Branch at Dragoon Horse Farm, 467 Baynard Boykin Road, Rembert, SC, where you will be sworn in as members of the militia of South Carolina and begin training in defense of the state.

Your group is to travel in the most expeditious means possible (as few vehicles as possible) to the above address while obeying all the traffic laws of the state. If you get completely lost, you may call Captain Sharbrough at 843-XXX-XXXX, but there is no guarantee that either you or he will have cell phone service. As a last resort, you may call Mr. John Cook at 803-XXX-XXXX.

Note the time your unit receives this information, the time your unit left Charleston, and the time your entire unit arrives at Dragoon Horse Farm. Turn in this sheet to Professor Sharbrough or one of the other trainers when you arrive.

Time orders received: _____
Time unit departed _____
Time unit arrived: _____

William C. Sharbrough
Captain, USMC

The General Order reads as follows:

> The state of South Carolina is being invaded by foreign troops. Governor Pickens has ordered all able-bodied citizens to form units to defend our fair state. Your unit is to report to Camp Branch at Dragoon Horse Farm, 467 Baynard Boykin Road, Rembert, SC, where you will be sworn in as members of the militia of South Carolina and begin training in defense of the state. Your group is to travel in the most expeditious means possible (as few vehicles as possible) to the above address while obeying all the traffic laws of the state. If you get completely lost, you may call Captain Sharbrough at 843-xxx-xxxx, but there is no guarantee that either you or he will have cell phone service. As a last resort, you may call Mr. John Cook at 803-xxx-xxxx. Note the time your unit receives this information, the time your unit left Charleston, and the time your entire unit arrives at Dragoon Horse Farm. Turn in this sheet to Professor Sharbrough or one of the other trainers when you arrive.

The order becomes the first opportunity for the team to take some initiative. The teams must note the departure and arrival times, as well as any difficulties in travelling as a team. The team reports and reviews their accomplishments or difficulties at the end of the first night.

Once a team arrives at the destination, they are welcomed by the instructor or another facilitator outfitted in 1860's period clothing and directed as a unit to a location where they are "sworn in" to the state militia. Each unit selects a leader and an assistant who will serve through the remainder of the night. They also establish a leadership rotation with changes on Saturday in the morning, at noon, during the evening, and on the following Sunday morning.

Next, a crusty First Sergeant issues the appropriate number of canvas tents along with written instructions for pitching tents and laying out the campsite. One of the facilitators, acting as private is available to answer questions, as well as evaluate teamwork processes during the setup. Camp setup is illustrated in the photos below in Figure 3. The camp setup process is used to illustrate reciprocal and sequential interdependent team actions. Subgroups of two to three people function best in this situation with a combination of reciprocal and sequential actions.

Figure 3: Camp Setup

Swearing in to the militia

Setting up the first tents

Only a Few More Tents to Go

Facilitators observe setup

Completed Camp Saturday Morning

After the tents are pitched satisfactorily, the "recruits" are served supper by the Quartermaster's Staff. The participants eat at period tables and benches assembled in the campsite. While the Quartermaster prepares the meals outdoors in period fashion, the menu is 21st century fare.

After supper, each team is tasked to produce a "period" team name and create a unit flag that is to be carried with the unit at all times. While the camp setup process was predominantly functional, the task of generating a name and flag is designed to stimulate group communication and creativity.

The night ends around a campfire where the staff and recruits engage in extensive introductions and assess the teamwork thus far. Participants also discuss the extent to which aspects of the team activities might represent those in their current work organizations.

Morning: Day 2

Day 2 begins with reveille sounded by a bugle at 0700 hours. Inspection ensues followed by breakfast at 0800 hours. Training begins at 0845 hours, with an introduction to basic marching followed by instruction in handling the 1843 Springfield musket. The recruits learn required safety procedures and then actually fire the musket using blanks. Once the recruits have mastered the musket, they are instructed in additional marching maneuvers that would prepare them for firing volleys at an enemy, which was a standard tactic during the period. The photographs in Figure 4 show the training and firing exercises.

Marching requires individuals to move together, stay in step, and shift direction simultaneously. Firing musket volleys requires synchronized movements and teamwork to maximize the effectiveness of the volley. Thus, these activities involve direct interaction between team members and represent reciprocal interdependence characteristic of situations comprising tight interconnections between members or organizational units (George & Jones, 2012). The success of the unit depends upon all members working well together with low levels of conflict. In contrast, poor performance ensues with conflict or a lack of communication that negatively impacts the essential and constant sharing of necessary information (Griffin & Morehead, 2011; Wagner & Lollenback, 2010).

After marching and musket training, units take a break for water and rest. During the break they are informed that there will be an evening campfire assembly during which each unit is responsible for presenting a skit or song that aptly reflects the experiences of their day in terms of teamwork.

The next activity is for the units to manually move an 1842 6-pounder, smooth-bore cannon and ammunition limber into firing position. Experienced facilitators teach the sequential steps necessary to fire the gun. All recruits learn each of the firing position tasks, as well as the associated safety procedures. Once the unit has achieved a safe level of proficiency, they fire the cannon several times.

Loading and firing the cannon requires seven or eight people working together in a series of related tasks; however, because safety is paramount, all team members are held accountable for safety and any team member may halt the loading and firing process at any time. Thus, while the loading procedure is sequential, safety is a reciprocal

responsibility of the team. Photographs of the loading and firing process conducted by highly experienced cadets are illustrated in Figure 4. Because of the importance of focusing upon safety, the facilitator attended entirely to safety and did not take photographs of the new recruits firing the cannon. Once the units have successfully completed this training, the recruits march in formation to lunch.

Figure 4: Basic Marching Drill, Musket Training, & Loading and Firing the 6-Pounder Cannon

First Attempts at Marching

Musket Training

Musket Training

Firing Muskets

Cadets unlimbering 6-Pounder Cannon

Cadets Preparing to Load

Cadets Loading Round

Cadets Firing Cannon

Afternoon: Day 2

At 1300 hours, the units are presented with a "Behind Enemy Lines" activity based on the classic "Lost on the Moon" group decision-making activity (Search Internet using "Lost on the Moon Exercise" for various examples and explanations). This activity is illustrated in Figure 5 below. By design, this activity focuses upon consensus building and communication. Once the recruits have prepared their individual ratings, they develop a team list, and both are compared against a rating prepared by a team of experts. The experts' ratings are prepared by a panel of experienced reenactors that have extensive outdoor experience along with military experience. In most cases, the outcome reveals that the team's performance is significantly better than the average performance of the individuals. Occasionally a team member has experience in this area and his or her individual performance exceeds that of the group. Regardless, the opportunity for debriefing team dynamics presents itself. For example, in cases where an expert team member's score bettered that of the team, a discussion of team dynamics and the ability of the expert to influence or not influence the team is relevant.

Figure 5: Behind Enemy Lines Activity

Your unit was assigned the task of blowing up a bridge 20 miles behind enemy lines. You were guided by a civilian who took you by boat up river to your objective, putting you ashore about a mile from the bridge. After you successfully accomplished your task, you returned to the boat to find that the civilian had left with the boat.

You are now afoot, 20 miles behind enemy lines in civilian clothing. You have no weapons, having lost them in your hasty escape after blowing the bridge. If you are captured, you will be shot as spies. You'll want to travel quickly and quietly as you attempt to get back to your home unit on the other side of the lines.

In his haste to leave, the civilian left the items listed below on the river bank. Your first task, to be done with individual effort only, is to rank these items in terms of importance for your team to take in your efforts to escape capture and return to your lines. Only after everyone has completed his or her rankings as an individual should you work together as a team to produce a team ranking of the items. When your group is done, your facilitator will provide the remainder of the directions.

Items Found on the Riverbank	(1) Your Ranking	(2) Team Ranking	(3) Expert Ranking	(1) – (3) Absolute Value	(2) – (3) Absolute Value
Compass					
Two boxes of hardtack (10 pieces/box)					
One musket--Broken, will not fire					
One A-frame tent (no poles)					
One box of matches					
One 2-quart cook pot					
Half pound of coffee					
40 musket rounds with caps					

Three canteens with water					
Twenty-five feet of 1/2" rope					
Map of the area					
Package of bandages					
Two empty haversacks					
Sheath knife					
Tobacco bag w/tobacco					
Totals					

The Fun Really Begins

There is a break after completing the "Behind Enemy Lines" activity. Near the end of the break, a courier rides up to the camp on a horse with a message for the unit. A paymaster's wagon with a shipment of gold has broken down nearby. The entire group is commanded to move out to recover the gold. They are given a rudimentary map by the First Sergeant and told that there are enemy cells operating in the vicinity. The units work together to determine the best route to reach the gold, recover it, and return safely to camp. Then they set off according to their plan. Along their route, they are attacked and harassed by enemy combatants on horseback and on foot.

Once the mission is accomplished, or fails when units are captured or simulated to be destroyed, the enemy combatants and team members return to camp for an after-action evaluation of planning, tactics, teamwork, and the extent of goal achievement. Photographs from "Recovering the Gold" are shown in Figure 6. The remainder of the afternoon is dedicated to team rest and planning for the evening's skits and songs.

Figure 6: Recovering the Gold

Planning the Operation

One Team Leaving Camp

Moving into No-Man's Land

Enemy Combatants

Evening: Day 2

Dinner is served at 1800 hours, followed by a night firing of the cannon at approximately 1900 hours. After the night firing, the campfire begins with one of the facilitators serving as Master of Ceremonies. Each team presents their skit or song, followed by a summary of the day's events conducted by the facilitators. Discussion topics include: (a) what went right or wrong, (b) evaluations of teamwork proficiency, (c) how the day's activities relate to realities in the participants' current workplaces, and (d) a brief introduction to the next day's activities. While few, if any participants will ever engage in combat or real life events that resemble this exercise, almost all can relate their experience to workplace events.

Morning: Day 3

Like Day 2, Day 3 begins with reveille sounded by a bugle at 0700 hours and breakfast at 0800 hours. Team members are allowed time to attend an ecumenical religious service if they choose, but those participating are also responsible to conduct the service as a team. After the service, the units begin to disassemble the camp. Once the tents are taken apart, folded, and stored, teams are tasked to clean the area before lunch.

Afternoon-Day 3

Lunch is followed by a final summation of the weekend's events and a graduation ceremony. A "Message from the Governor" declares the emergency at an end and thanks the participants for their service before they are dismissed to return to their homes and jobs.

DISCUSSION

The first author has conducted this exercise four times. Three events were held in the month of June and a fourth in April. In each of the three summer workshops, heat or rain presented unintended challenges and immediate adjustments were required, such as moving some activities indoors. In other cases, activities were abbreviated. The spring workshop posed no environmental challenges and was deemed a success by both the participants and facilitators. Evaluations of the weekend by the participants have always been very positive, with few suggestions for improvements. Finally, the workshop provides a military flavor to the experience of MBA candidates, which ties directly into the history of the institution.

Many people have been to teambuilding workshops, participated in "ropes courses," and other similar activities. This workshop provides a unique approach to accomplishing the goals needed for a teambuilding activity for new teams, and possibly for intact work groups. The first author is also seeking opportunities to conduct the exercise with professional groups from the workforce.

The objective for the students enrolled in the MBA class is to learn about teambuilding by experiencing teambuilding. Although it is unlikely that students will remain in their teams after the class ends, they take with them an understanding of the kind of teambuilding activities that are possible in the workplace, as well as a fuller understanding of why healthy and effective teams are important to organizational effectiveness.

The objective of this paper is to illustrate one possibility for conducting an engaging effective experiential exercise. It is not the intent of the authors to fully explore relevant teambuilding theories or to defend the outcome of the theories being applied in a live environment. One challenge in attempting to do so is the dynamic nature of experiential exercises in a live context. The facilitator cannot always be sure of the outcomes and so must be prepared to debrief the activity accordingly, i.e., as it actually happened. So, a thorough knowledge of the theory behind the activity and the experience of the facilitator are important to presenting effective experiences for students.

Although most instructors and teambuilding professionals are not in a position to duplicate the exercise exactly as it is described here, they can develop comparable experiences. The first author is a Civil War reenactor who is highly motivated by both a passion for the theme and his relationship with a professional network of reenactors established over many years. He took advantage of his deep personal interest in order to create this exercise for his students. Similarly, the authors recommend that professional instructors consider their own passions or interests and how those might be appropriately used to build experiential exercises. An instructor's passion and expertise can generate the authenticity needed to produce the kind of exercises that students will find very interesting. Accompanied by the application of theory from the instructor's disciplinary area, such exercises can yield a highly effective learning experience for students (Bonwell & Eison, 1991; Burch et al., 2014; Morgan et al., 2005).

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Manuscript Guidelines, Submission and Review Process

TOPIC AREAS (BUT NOT LIMITED TO THESE):

- Course design – current courses, new courses, new trends in course topics
- Course management – successful policies for attendance, homework, academic honesty …
- Class material
  - o Description and use of new cases or material
  - o Lecture notes, particularly new and emerging topics not covered effectively in textbooks
  - o Innovative class activities and action-learning – games, active learning, problem based
- Major or emphasis area program design that is new or innovative.
- Assessment – all aspects including AACSB and university level assessment strategies and programs
- Integration of programs or courses with other academic disciplines
- Internship programs
- Business partnerships
- Successful student job placement strategies
- Any topic that relates to higher education business education.

SUBMISSION AND REVIEW PROCESS:

Copyright

- Manuscripts submitted for publication should be original contributions and should not be under consideration with another journal.
- Authors submitting a manuscript for publication warrant that the work is not an infringement of any existing copyright, infringement of proprietary right, invasion of privacy, or libel and will indemnify, defend, and hold Elm Street Press harmless from any damages, expenses, and costs against any breach of such warranty.

Prepare your manuscript

- See the Style Guideline page for specific instructions.
- Articles must make a contribution to business education innovation.
- Manuscripts should be limited to 8 to 10 pages or less, although longer will be accepted if warranted.
- Articles can be either regular research papers, or shorter notes that succinctly describe innovative classroom teaching methods or activities.
- Manuscripts should be completely finished documents ready for publication if accepted.
- Manuscripts must be in standard acceptable English grammatical construction.
- Manuscripts should be in MS Office Word format. Word 2007 files are acceptable, as are earlier versions of Word. If you are using a new version of Word after Word 2007, save in Word 2007 format.

Submit your manuscript

- Manuscripts may not have been published previously or be under review with another journal.
- Submit the manuscript attached to an email to **submit@beijournal.com**
- We will respond that we have received the manuscript.
- Article submissions can be made at any time.
- Submission deadlines: September 15 for December issue, March 15 for June issue.

Manuscript review

- The editor and reviewers will review your submission to determine if 1) the content makes a contribution to innovative business education, 2) is of the proper page length, 3) is written in proper grammatical English, and 4) is formatted ready for publication.
- Submissions not meeting any of these standards will be returned. You are invited to make revisions and resubmit.
- If the submission meets the standards, the manuscript will be sent to two reviewers who will read, evaluate and comment on your submission.
- The editor will evaluate the reviews and make the final decision. There are 3 possible outcomes:
    - Accept as is.
    - Accept with minor revisions.
    - Not accepted.
- Reviews will be returned promptly. Our commitment is to have a decision to you in less than two months.
- If your paper is not accepted, the evaluation may contain comments from reviewers. You are invited to rewrite and submit again.

If your paper is accepted

- Minor revision suggestions will be transmitted back to you.
- Revise and send back as quickly as possible to meet printer deadlines.
- Upon final acceptance, we will bill you publication fees. See www.beijournal.com for latest per page fees. Sole author fees are discounted.
- The fees include all costs of mailing a copy of the issue to each author via standard postal ground.
- Delivery to locations outside the continental US will cost an additional $10 per author for 5 day delivery.
- Faster delivery methods are available for US and international delivery. Contact the editor for a specific pricing.
- All publication fees should be remitted within 10 business days of acceptance, if possible.
- If you decide not to publish your paper with BEI Journal after submitting payment, we will refund publication fees less $200 to cover costs of review and processing.
- Cancellation cannot occur after the paper has been formatted into the final printer's file.

Manuscript Style Guide and Example

An example is providing following these instructions.
This style guide represents style guidelines in effect for future issues.
Authors are responsible for checking for correct grammar, construction and spelling. Authors are also responsible for formatting pictures, tables, and figures such that a pdf black and white file sent to the publisher will reproduce in a readable manner.

General Setup:

- All fonts: Times New Roman. 10 point for text. Other sizes as noted below
- Margins: 1 inch on all sides of 8½x11 inch paper size.
- No headers or footers.
- Avoid footnotes unless absolutely necessary.
- Page numbering bottom centered.
- No section breaks in the paper.
- No color, including url's. Format to black. No color in tables or figures. Use shading if necessary.
- All pages must be portrait orientation. Tables and figures in landscape orientations should be reformatted into portrait orientation.
- All paragraphs should be justified left and right, single spaced, in 10 point Times font, no indent on first line, l line between each heading and paragraph.
- One line between each paragraph.

Titles, Authors, and Headings:

- **Title centered 14 point bold**. One line between title and author's name.
- Authors: centered, 12 point. Name, affiliation, state, country.
- One line space to **ABSTRACT** (title 10 point, bold, all capitalized, aligned left; text of abstract 10 point, no bold)
- After **ABSTRACT**, one line space, then **Keywords**. Followed by one line space to first major heading.
- **HEADINGS, MAJOR**, 10 point, bold, all capitalized, aligned left.
  The specific headlines will be based on the content of the paper, but major sections should at a minimum include an abstract, keywords, introduction, conclusion, and references.
- **Sub-headings**: 10 point, bold, first letter capitalized, no line to following paragraph. Align left.
- *Third level headings: Italic*, 10 point, first letter capitalized, no line to following paragraph. Align left.
- **Keywords:** heading: 10 point, bold, first letter capitalized, no line to following paragraph. Align left. Your list of keywords in 10 point, no bold.

Tables, Figures and Graphs:

- All fonts 10 point.
- Numbered consecutively within each category. Table 1, Figure 1 etc.
- Title: 10 point, bold, left justify title, one space, then the table, figure, etc.
- Example: **Table 1: Statistical Analysis**

References:

- APA format when citing in the text. For example (Smith, 2009).
- References section: 8 point font, first line left margin, continuation lines 0.25 inch indent. Justify left and right. No line spacing between references. List alphabetically by first author.
- Specific references: Last name, First initial, middle initial (and additional authors same style) (year of publication in parentheses). Title of article. *Journal or source in italics.* Volume and issue, page number range.
- Example: Clon, E. and Johanson, E. (2006). Sloppy Writing and Performance in Principles of Economics. *Educational Economics*. V. 14, No. 2, pp 211-233.
- For books: last name, first initial, middle initial (and additional authors same style) (year of publication in parentheses). *Title of book in italics.* Publisher information.
- Example: Houghton, P.M, and Houghton, T.J. (2009). *APA: The Easy Way!* Flint, MI: Baker College.

Example (note that this example represents a change from previous style guides)

Evidence to Support Sloppy Writing Leads to Sloppy Thinking

Peter J. Billington, Colorado State University - Pueblo, Colorado, USA (12 point)
Terri Dactil, High Plains University, Alberta, Canada

ABSTRACT (10 point, bold, all capitalized, left justified)

(text: 10 point Times font, no indent, justified, single space, 150 words maximum for the abstract)
The classic phrase "sloppy writing leads to sloppy thinking" has been used by many to make writers develop structured and clear writing. However, although many people do believe this phrase, no one has yet been able to prove that, in fact, sloppy writing leads to sloppy thinking. In this paper, we study the causal relationship between sloppy writing and sloppy thinking.

Keywords: sloppy writing**,** sloppy thinking **(10 point, bold title, first letter capitalized, left justified).**

INTRODUCTION (10 point, bold, all capitalized, left justified).

The classic phrase "sloppy writing leads to sloppy thinking" has been used by many to make writers develop structured and clear writing. However, since many people do believe this phrase, no one has yet been able to prove that in fact, sloppy writing leads to sloppy thinking. Is it possible that sloppy writing is done, even with good thinking. Or perhaps excellent writing is developed, even with sloppy thinking.

In this paper, we study the writing of 200 students that attempts to test the theory that sloppy writing leads to sloppy thinking.

PREVIOUS RESEARCH

The original phrase came into wide use around 2005 (Clon, 2006), who observed sloppy writing in economics classes. Sloppy writing was observed in other economics classes (Druden and Ellias, 2003).

RESEARCH DESIGN

Two hundred students in two business statistics sections during one semester were given assignments to write reports on statistical sampling results. The papers were graded on a "sloppiness" factor using…

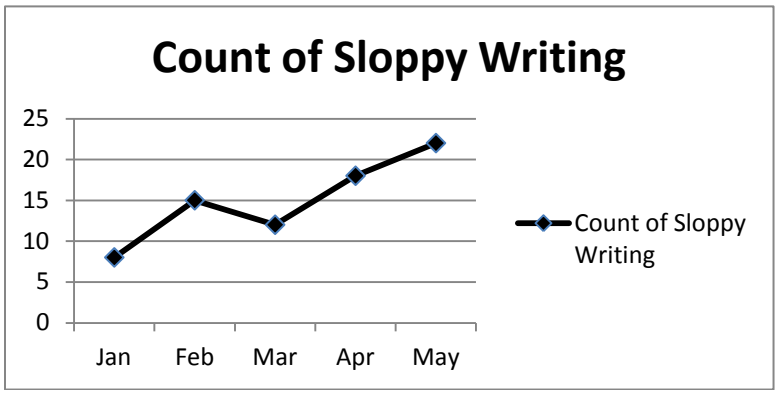
Data Collection (Sub-heading, bold but not all caps, 10 point, aligned left, bold, no line after to paragraph)
The two hundred students were asked to write 2 short papers during the semester…

Data Analysis(Sub-heading, bold but not all caps, 10 point, aligned left, bold, no line after to paragraph)
The two hundred students were asked to write 2 short papers during the semester…

DISCUSSION

The resulting statistical analysis shows a significant correlation between sloppy writing and sloppy thinking. As noted below in Figure 1, the amount of sloppy writing increases over the course of the spring semester.

Figure 1: Sloppy Writing During the Semester



The count results were compiled and shown in Table 1 below.

Table 1: Counts of Good and Sloppy Writing and Thinking (bold, 1 line after to table, left justify)

	Good Thinking	**Sloppy Thinking**
Good Writing	5	22
Sloppy Writing	21	36

*-Indicates significance at the 5% level)

As Table 1 shows conclusively, there is not much good writing nor good thinking going on.

CONCLUSIONS

The statistical analysis shows that there is a strong relation between sloppy writing and sloppy thinking, however, it is not clear which causes the other…

Future research will try to determine causality.

REFERENCES (title10 point, all caps, bold, align left, one line to first reference)
(1line spacing) (All references 8 point, indent second line 0.25 inch, justify left and right)

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Druden, G. and Ellias, L. (1995). *Principles of Economics.* New York: Irwin.

(short bio section optional, can run longer than these examples; removed before sent to reviewers)

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