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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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Optimizing Grade Point Averages During the Pandemic at a Regional University

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ABSTRACT

The rapid spread of COVID-19 in the United States forced Universities to switch to a 100% online format during the middle of Spring 2020 semester – an unprecedented move in the history of academia. The administration at Thomas Jefferson University drafted a special grade policy that allowed students to convert some or all their letter grades into Credit/No Credit. More importantly, students could implement this policy after final grades were submitted by faculty. The policy motivated Jefferson's Business School faculty to explore the interesting geometry and mathematical properties pertaining to GPA/CGPA. Being a student-driven University, we used this new knowledge to guide our students through this process and helped them optimize their GPA/CGPA. This special policy enabled some students to get on the Dean's List and helped some others to avoid academic probation. These success stories were some highlights in an otherwise stressful semester. The main contribution of this paper is the mathematics of GPA/CGPA.

Keywords: Mathematical Methods, Education, Optimization, GPA, Break-Even Analysis.

INTRODUCTION

As the number of COVID-19 cases increased rapidly, the US Universities had to switch to a 100% online format immediately after Spring Break in March 2020. This transition was challenging for everyone. The faculty at Thomas Jefferson University spent several days before and during its Spring Break to become familiar with technology needed for the virtual classroom. It was not easy for students either, as most of them had not taken online classes before. Jefferson is in Philadelphia and a large group of students belong to New York and New Jersey – hotspots for COVID-19 at that time. The University was concerned about the mental and physical well-being of our students and prepared a special grade policy using which the students could opt to convert some or all their passing letter grades into CR (Credit) and their failing grades into NC (No Credit). Students also had the opportunity to wait until the final grades were posted by faculty before making their decisions. A vast majority of the students qualified for this policy. Some exceptions were athletes who had to abide by NCAA rules and expected to retain the letter grades. Students in the Honors program were also expected to retain the letter grades. The policy also indicated that a student could get on the *Dean's List* with a GPA of 3.5 by completing 12 hours with *nine* credit hours retained as letter grades. Normally, students need a GPA of 3.6 for this honor. The rest of the paper will refer to this special policy as the *CR/NC policy*.

Jefferson follows a student-centric model at the undergraduate level and advising plays a critical role. Each faculty member is provided with approximately 30 students – known as advisees. Faculty is expected to ensure that these advisees take the right classes each semester and guide them with *Study Abroad* semesters, *summer classes*, *internships*, *Major* and *Minor* requirements as and when needed. On average, a faculty member meets with each advisee at least once per semester. When the Business School faculty reviewed the CR/NC policy, we were afraid that students may not take advantage of it. We knew that the policy could be used not only to eliminate low passing grades but to also optimize GPA/CGPA. This motivated us to probe further and understand the mathematics involved in relation to this policy. With this knowledge, we could guide our advisees to make optimal decisions and avoid pitfalls. The main contribution of this paper is the geometrical and mathematical ideas developed later in this paper.

Jefferson believes in the pursuit of knowledge and maintains high ethical standards. However, the months of March, April, and May of Spring 2020 semester were difficult for everyone. Several of our students lost their part-time jobs due to the shut-down of small businesses. A parent or both parents of some students lost jobs while some other students had to deal a family member infected by COVID-19. Our University did the right thing by preparing the CR/NC policy for our students. The expectation was that the students will convert low passing grades to CR and F grades to NC and eliminate the possibility of a poor Spring 2020 GPA impacting the overall CGPA. Our Business

School faculty studied the CR/NC policy and concluded that most students have an opportunity to boost their GPA/CGPA.

A good GPA may not solely reflect the knowledge or skills possessed by a student. However, it is important in the real world as it directly translates into *money*. Most scholarships require students to maintain a certain GPA. Auto insurance companies offer discounted rates for college students with good GPA. Employers hiring students for internships or full-time jobs expect a minimum GPA from applicants. Broadly, grades are intended to communicate valuable information to students themselves, financial aid officers, graduate schools, and potential employers (Bar, Kadiyali & Zussman, 2009).

The CR/NC policy or a variation of it had been adopted by about 150 U.S. colleges in Spring 2020 when they moved to the online format (Basken, 2020). Many colleges had switched to CR/NC with an option for a letter grade upon knowing their final grades. However, such grading policies raise concerns around GPA calculations for scholarships, application for graduate/professional programs, accreditation, and the transferability of credits (Burke, 2020). In addition to student situation with financial aid, honors program, and post-graduation plan, their credits earned, current letter grades, and cumulative GPA (CGPA) also play a critical role in the decision to opt for pass-fail grades. While the CR/NC grading had been implemented as a short-term change during the pandemic, it has the potential to bring a fundamental change across higher education as there is a growing demand for flexible alternatives to letter grades to accommodate transfer students and individual students under special situations. By examining the mathematics of GPA/CGPA with respect to this CR/NC policy, our study aims to provide some insights about this type of grading.

Our main contributions are presented in the following sections: "*The Geometry of GPA/CGPA*", "*Properties based on the Mathematics of GPA/CGPA*", and "*Break-Even Analysis*". These are original ideas and no related literature is available. However, research related to GPAs in schools and colleges is available. For example, researchers focused on grade inflation (Valen, 2003) and the increasing trend in students enrolling in leniently graded courses (examples include Sabot & Wakeman-Linn, 1991; Bar et al., 2009). Another study was to see if grade inflation is related to productivity growth at a regional university (Summary & Weber, 2012). A recent study discussed the correlation between inflated GPAs and inflated SET (student evaluation of teaching) scores (Koper, Felton, Sanney & Mitchell, 2015). Some studies were done to understand the relationship between grades and choice of majors in the fields of science, technology, and engineering (Ehrenberg, 2010 and Ost, 2010). A more recent study was about how differential grading standards across different fields of study may play a role in the choice of a Major in college (Minaya, 2020).

RESEARCH SIGNIFICANCE

We believe our study makes an important contribution to GPA related studies and has short-term as well as long-term applications. Jefferson may not implement the CR/NC policy again for our returning students. However, some other Universities are planning to implement variations of this policy in the Fall 2020 semester. For example, MIT is providing some leverage to their students by giving them the option of dropping their poor grades (D or below).

Variations of CR/NC policy have always been in place and students used it to their academic advantage. For example, when students do their *Study Abroad* for a term, the credits are transferred as CR/NC. Students may choose courses suggested by their advisor or take some Free electives. However, some students may be more selective. They may perceive some of our course offerings as difficult and attempt to take them elsewhere. Such strategies are also used when students take summer classes elsewhere. There is another policy that exists in academic catalogs – for example, our University allows students to take up to four classes i.e., 12 credits as CR/NC during their undergraduate program. This policy may come with restrictions such as not taking courses in their majors for CR/NC. A recent graduate availed this provision in the last semester of his Senior year. He needed 12 credits to graduate and he designated all his classes as CR/NC as a strategy to focus on his job search. Another recent graduate was trying to get on the Dean's List for three consecutive semesters but could not succeed. She then decided to take the normal load of five classes but designated two classes as CR/NC. By putting in extra effort in her classes with letter grades, she obtained grades of A, A-, and B+ which got her on the Dean's List. She put in enough effort to obtain CR in her other two classes.

We strongly believe that the CR/NC policy will find its way into academic catalogs but may be used under special situations. The death of a parent or a sibling or even a roommate during the middle of a semester can be a traumatic

experience for a student. Professors take that into consideration and provide make-up exams and extend deadlines. It can still be overwhelming for a student during such trying circumstances. The CR/NC policy will be appropriate for such a situation and Universities could consider the merits of implementing it. This policy also has the advantage of possibly preventing a student from taking a Leave of Absence. A Leave of Absence is generally detrimental to academic progression as there is a possibility for such students to never return to complete their education.

THE ARITHMETIC OF GPA AND CGPA

For convenience, we make the following *assumptions* in this paper: (i) All students are undergraduates, (ii) All courses are 3-credit classes, (iii) Students take 15 credits each semester, (iv) Students start their college education in the Fall semester of each academic year, (v) Due to Assumptions (i), (ii), (iii), and (iv), a Freshman is assumed to have completed 15 credits before the Spring 2020 semester. Similarly, a Sophomore, Junior, and Senior are assumed to have completed 45 credits, 75 credits, and 105 credits respectively before Spring 2020 semester.

We now present information about grades and quality points. At our University, a student can obtain any of the following letter grades in each course: A, A–, B+, B, B–, C+, C, C–, D+, D, and F. Each letter grade is associated with a certain number of *quality points* i.e., A = 4; A– = 3.67; B+ = 3.33; B = 3; B– = 2.67; C+ = 2.33; C = 2; C– = 1.67; D+ = 1.33; D = 1; and F = 0. As per the CR/NC policy, a student may choose to convert any or all passing grades (grades of D or better) to CR. In the case of "F", the student can convert it to NC. CR and NC do not impact GPA/CGPA. Courses converted to CR are considered completed and counted towards graduation. Courses converted to NC are counted as attempted.

The difference between F and NC

An F grade is included in GPA calculations until that class is repeated and completed successfully. For example, if a student obtains grades of A, A, A, A, and F, the GPA will be 3.2. If the student repeats that class and obtains an A, the GPA will change to 4. If a student obtains A, A, A, A, and NC in a certain semester, the GPA will be a perfect 4. The issue with "F" is that if the student chooses not to repeat that course, it will continue to impact the GPA even when the student could graduate by taking another Free Elective instead.

GPA and CGPA calculations

The formula to calculate GPA/CGPA is: $\sum$*(Credits*Quality Points) /* $\sum$*Credits Completed*. Although GPA/CGPA calculations involve basic arithmetic, we present some numerical examples to better understand the CR/NC policy.

Example 1

This shows GPA calculations of any Spring semester when the student obtains grades of A, A–, B+, B, C. The GPA is calculated as: ((3*4) + (3*3.67) + (3*3.33) + (3*3) + (3*2))/15 = 3.2.

Example 2

This is to calculate CGPA at the end of a *normal Spring semester*. Let the student from Example 1 be a Freshman who completed 15 credits with a CGPA of 3 before this semester. The revised CGPA (including this semester) = ((15*3) + (15*3.2))/(15+15) = 3.1. If this student were a Sophomore, the revised CGPA = ((45*3) + (15*3.2))/(45+15) = 3.05. If this student were a Junior, the revised CGPA = ((75*3) + (15*3.2))/(75+15) = 3.03. Lastly, if this student were a Senior, the revised CGPA = ((105*3) + (15*3.2))/(105+15) = 3.025. Note the reduced impact of the current semester's GPA on the overall CGPA as we move from a Freshmen to a Senior. This is shown geometrically in a later section.

Example 3

This is to calculate GPA for Spring 2020 as well as the student's CGPA by incorporating the University's CR/NC policy. Assume a Freshman with a CGPA of 3 before Spring 2020 semester. Assume that this student's Spring 2020 grades were A, A–, B+, B, C. Using the CR/NC policy, if the student chooses to retain A, A–, B+ as letter grades and convert B, C to CR, the GPA for Spring 2020 will be: ((3*4) + (3*3.67) + (3*3.33))/9 = 3.67. This is significantly higher than the GPA of 3.2 from Example 1 and indicates that the student benefits from the CR/NC policy. Now the CGPA including Spring 2020 grades is recalculated as: ((15*3) + (3*4) + (3*3.67) + (3*3.33))/(15 + 9) = 3.25. In the case of Sophomore, Junior, and Senior, the recalculated CGPA will be 3.11, 3.07, and 3.05 respectively (we omit the arithmetic here). The purpose of this example was to show the arithmetic for GPA/CGPA calculations while using the CR/NC policy. The strategy of optimizing GPA/CGPA will be discussed later in this paper.

UNDERSTANDING THE CR/NC POLICY

The CR/NC policy was unique because a student could wait until final grades were posted by faculty and then decide on the best strategy. Here, the best strategy means finding the optimal mix of courses to be retained as letter grades to optimize GPA/CGPA. The students could make informed decisions and had an opportunity to boost their GPA. This was a case of *Decision Making with Perfect Information*. A starting point of our study was a *Rule of Thumb*: *Use a student's CGPA* "α" *before Spring 2020 as the cutoff point. Identify all Spring 2020 letter grades with quality points < α and convert those to CR (or NC if letter grade is F)*. This eliminates the possibility of post-Spring 2020 CGPA going below α. This rule may boost a student's CGPA if there is at least one Spring 2020 letter grade with quality points > α. This Rule of Thumb may not always result in an optimal GPA/CGPA though. We study this problem further and in a later section, present more robust rules to optimize GPA/CGPA.

The CR/NC policy did not benefit everyone. For example, Student X with a CGPA of 3 before Spring 2020 and with grades of B, B, B, B, and B in Spring 2020 had no use of this policy. However, Student Y with a CGPA of 3 before Spring 2020 and with grades of A, A–, B+, C, D in Spring 2020 semester could convert grades C, D to CR and retain only A, A–, and B+ as letter grades. If this were a normal semester with no CR/NC option, student Y's GPA would have been 2.8. However, the student benefitted from this policy and got on the Dean's List with a GPA of 3.67. The Business School faculty guided several such students.

THE GEOMETRY OF GPA/CGPA

Based on our initial assumptions, the Freshman, Sophomore, Junior and Senior are assumed to have completed 15, 45, 75, and 105 credits respectively before Spring 2020 semester and assumed to be taking 15 credits during Spring 2020 semester. Our University has *eleven* (**n**) possible letter grades (A,…, F) and when a student takes *five* (**r**) classes in a semester, a total of (n+r-1)!/r!(n-1)! i.e., 3003 grade combinations are possible. This formula is used to find all grade combinations with *repetitions*. Given 3003 combinations, the best combination is when a student obtains all *As* (GPA = 4) and the worst combination is when the student obtains all *Fs* (GPA = 0). It is important to note that the more commonly used formula: ${}^{n}C_{r}$ = n!/r!(n-r)! cannot be used for our problem because it does not allow repetitions. To explain this, consider a college system with only five letter grades (A, B, C, D, F) and a student taking exactly two classes. Here, the possible fifteen grade combinations are: A,A; A,B; A,C; A,D; A,F; B,B; B,C; B,D; B,F; C,C; C,D; C,F; D,D; D,F; and F,F. Here, A,A means the student obtains A in both courses, A,B means the student obtains A in one course and B in the other, and so on. Since the ${}^{n}C_{r}$ = n!/r!(n-r)! formula does not allow repetitions, it results in only 10 combinations (i.e., the repetitive grades A,A; B,B; C,C; D,D; and F,F are not allowed).

We consider a Freshman having completed 15 credits before Spring 2020. Let α = the student's CGPA before Spring 2020 semester. Let α^* = CGPA that includes Spring 2020 grades. If this student obtains all *A* grades in Spring 2020 (best-case scenario), then $\alpha^* = (15*\alpha + 15*4)/30 = \alpha/2 + 2$. If this student obtains all *F* grades, $\alpha^* = (15*\alpha + 15*0)/30 = \alpha/2$. Similarly, we can obtain α^* values for best-case and worst-case scenarios for a Sophomore, Junior and Senior as presented in Table I below.

TABLE I

Freshman	Sophomore	Junior	Senior
Credits completed: 15 CGPA (before Spring 2020) = α	Credits completed: 45 CGPA (before Spring 2020) = α	Credits completed: 75 CGPA (before Spring 2020) = α	Credits completed:105 CGPA (before Spring 2020) = α
Best Case Scenario Spring 2020 GPA = 4 $\alpha^* = \alpha/2 + 2$	*Best Case Scenario* Spring 2020 GPA = 4 $\alpha^* = 3\alpha/4 + 1$	*Best Case Scenario* Spring 2020 GPA = 4 $\alpha^* = 5\alpha/6 + 2/3$	*Best Case Scenario* Spring 2020 GPA = 4 $\alpha^* = 7\alpha/8 + 1/2$
Worst Case Scenario Spring 2020 GPA = 0 $\alpha^* = \alpha/2$	*Worst Case Scenario* Spring 2020 GPA = 0 $\alpha^* = 3\alpha/4$	*Worst Case Scenario* Spring 2020 GPA = 0 $\alpha^* = 5\alpha/6$	*Worst Case Scenario* Spring 2020 GPA = 0 $\alpha^* = 7\alpha/8$

The best-case and worst-case equations are parallel lines with the same slope but different Y-intercepts. In the case of a Freshman, the best-case scenario equation is: $\alpha^* = \alpha/2 + 2$ with slope = 1/2 and intercept = 2. Similarly, the

worst-case scenario is: $\alpha^* = \alpha/2$ with slope = 1/2 but an intercept = 0. We use X-axis for α and Y-axis for α^* and plot the two lines as seen in *Figure 1*. Thus, OPQR is a parallelogram with base = 2, height = 4, and Area = 8 square units. Similarly, Figures 2, 3, and 4 are for a Sophomore, Junior, and Senior respectively with decreasing areas of 4, 2.67, and 2 square units, respectively. The parallelograms get narrower since AB (or PO or QR) becomes smaller i.e., AB = 2, 1, 0.67, and 0.5 units for a Freshman, Sophomore, Junior, and Senior, respectively. This means the impact caused by the current semester's GPA is more for a student with fewer credits completed (e.g., a Freshman) but significantly less for a student who completed several semesters (e.g., a Senior with 105 credits). In the case of line AB (i.e., at $\alpha = 2$), point A is the α^* value when a student obtains the highest GPA of 4 and point B is the α^* value when the student obtains the lowest GPA of 0 in the Spring 2020 semester. All other points on AB represent α^* values (at $\alpha = 2$) due to all other possible grades obtained in Spring 2020. From our earlier discussion, a student taking five classes can obtain any of the 3003 possible grade combinations. In reality, AB represents fewer than 3003 α^* values because some grade combinations result in the same GPA (e.g., grades of A, A, B, C, and C and grades of B, B, B, B, and B have the same GPA of 3). Figures 1, 2, 3, and 4 show three vertical lines PO, AB, and QR representing α^* values for approximately 3003 possible grades in Spring 2020 at $\alpha = 0$, $\alpha = 2$, and $\alpha = 4$, respectively. Thus, the entire region OPQR is for such vertical lines for various possible α values between 0 and 4.

Figure 1

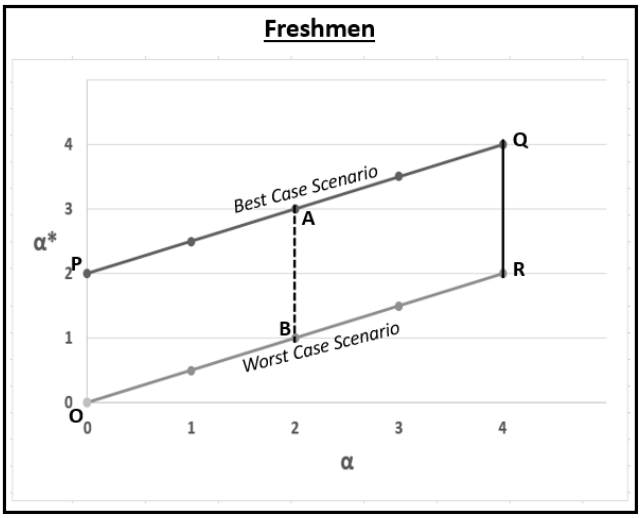


Figure 2

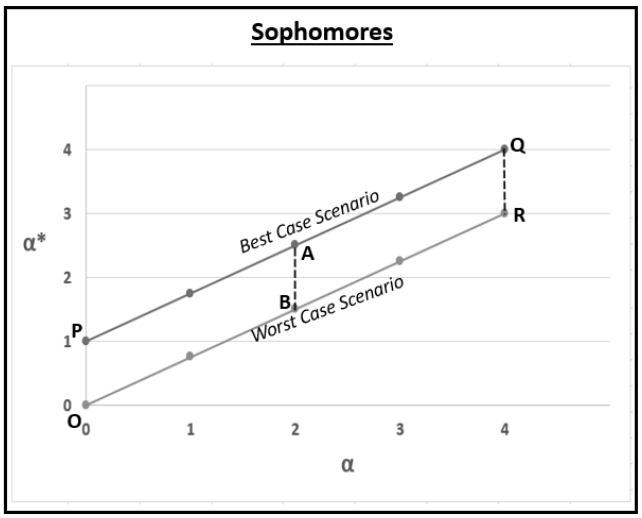


Figure 3

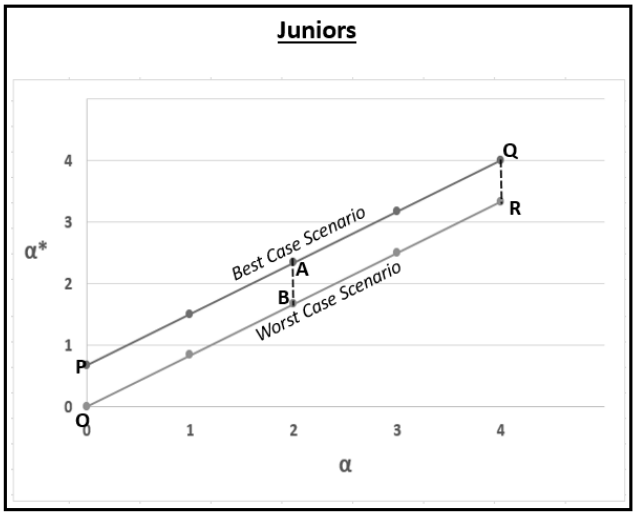
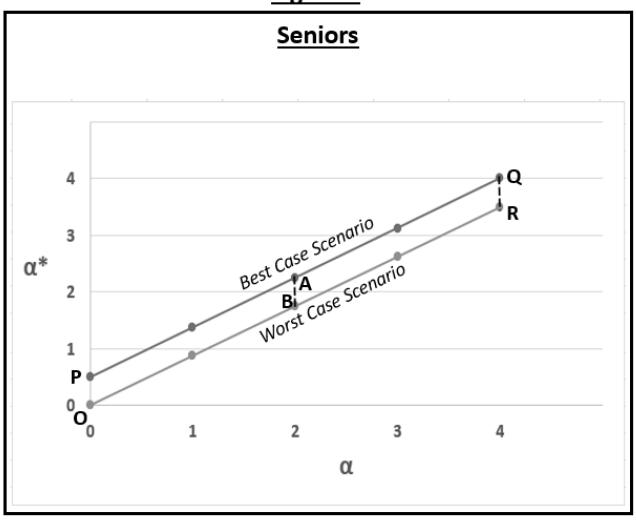


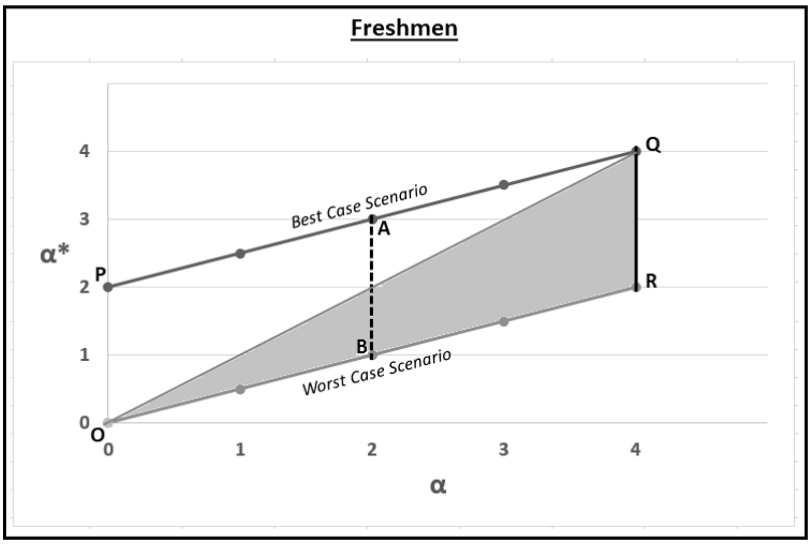
Figure 4



We now look at the geometry in the case of the Spring 2020 semester with the CR/NC policy. Note that so long as a student implements the *Rule of Thumb* with the CR/NC policy, the α^* value will lie only in the triangular region

OPQ as indicated in *Figure 5* below. In other words, the α^* values will no longer be in the shaded area below line OQ. Thus, the feasible region reduces to half the original area. Recall that the *Rule of Thumb* is to convert all letter grades lower than α to CR/NC. This strategy ensures that α^* is always ≥ α. Similarly, with a student taking courses elsewhere (e.g., summer classes or Study Abroad), the earned credits get transferred as CR implying $\alpha^* = \alpha$ which essentially means that α^* lies on the diagonal OQ. We use Figure 5 to represent a Freshman. However, the same concepts apply in the case of Sophomores, Juniors and Seniors as well. In this section, we explored the geometry of

Figure 5



GPA/CGPA to understand that the feasible space for CGPA is a parallelogram in a normal semester, whereas it is a triangle in a semester like Spring 2020 when the CR/NC policy is applied efficiently using the Rule of Thumb.

PROPERTIES BASED ON THE MATHEMATICS OF GPA/CGPA

We present fundamental rules based on our observation of some theoretical properties. We present these rules as remarks and provide numerical examples or proofs where possible. We consider a Freshman who completed 15 credits before Spring 2020 semester. We denote α to represent the CGPA before the Spring 2020 semester and α^* to represent the revised CGPA that includes the Spring 2020 letter grades. In addition, we denote β to represent a student's GPA for Spring 2020 with grades β_1, β_2, β_3, β_4, and β_5 in the five courses sorted in non-increasing order of their quality points i.e., $\beta_1 \geq \beta_2 \geq \beta_3 \geq \beta_4 \geq \beta_5$.

Remark 1: If a Spring 2020 course grade β_i = F, then it must be converted to NC as it lowers the α^* value otherwise.
Proof: $\alpha^* = (15\alpha + 3\beta_i)/18 = 5\alpha/6 + \beta_i/6$. Since $\beta_i = 0$, it can be concluded that $\alpha^* < \alpha$.

A Numerical Example
Assume α = 3.25 and β_5 = F (quality points = 0). Then $\alpha^* = (15*3.25 + 3*0)/18 = 2.71$. Thus $\alpha^* < \alpha$.
For the remaining remarks presented below, all letter grades are assumed to be passing letter grades.

Remark 2: A Spring 2020 course grade β_i with quality points less than α (i.e., $\beta_i < \alpha$) must be converted to CR as it lowers the α^* value otherwise.
Proof: $\alpha^* = (15\alpha + 3\beta_i)/18 = 5\alpha/6 + \beta_i/6$. Since $\beta_i < \alpha$, it can be concluded that $\alpha^* < \alpha$.

A Numerical Example
Assume α = 3.25 and β_5 = B (quality points = 3). Then $\alpha^* = (15*3.25 + 3*3)/18 = 3.21$. Thus $\alpha^* < \alpha$.

Remark 3: A Spring 2020 course grade β_i with quality points greater than α increases the α^* value.
Proof: $\alpha^* = (15\alpha + 3\beta_i)/18 = 5\alpha/6 + \beta_i/6$. Since $\beta_i > \alpha$, it can be concluded that $\alpha^* > \alpha$.

A Numerical Example
Assume $\alpha = 3.25$ and β_1 = B+ (quality points = 3.33). Then, $\alpha^* = (15*3.25 + 3*3.33)/18 = 3.26$. Thus $\alpha^* > \alpha$.

Remarks 1, 2, 3 may be obvious but important starting points in the quest for optimizing α^*. We delve deeper into the mathematics of GPA/CGPA and present the more important Remarks 4, 5, and 6 below.

Remark 4: A Spring 2020 course grade β_k with quality points = α will result in a suboptimal α^* when retained as a letter grade if there is at least one letter grade β_j with quality points > α.

Proof: Let β_1, β_2, β_3, β_4, and β_5 be the Spring 2020 grades in non-increasing order of their quality points. Assume that $\beta_2 = \alpha$ and $\beta_1 > \alpha$. As per Remark 3, including β_1 in the CGPA calculations will result in $\alpha^* > \alpha$. Since $\alpha^* > \beta_2$, adding β_2 to recalculate α^* will lower the current α^* value.

A Numerical Example
Assume a Freshman with $\alpha = 3$ and β_1 = A, β_2 = B. Note that β_3, β_4, and β_5 will be equivalent to B or lower since they are sorted in non-increasing order of quality points. At first, if only β_1 (= A) is included in the CGPA calculations, $\alpha^* = (15*3 + 3*4)/18 = 3.17$. Now, upon adding β_2 (= B) in the CGPA calculations, $\alpha^* = (15*3 + 3*4 + 3*3)/21 = 3.14$. This method of calculating α^* values by including one letter grade at a time starting with the *best grade first* (β_1 first, β_2 next, and so on) helps in identifying the first letter grade that lowers the α^* value. Here, the α^* value went down from 3.17 to 3.14 due to β_2 and resulted in a suboptimal α^* value. If the order is now reversed and only β_2 (= B) is included in the CGPA calculations, $\alpha^* = (15*3 + 3*3)/18 = 3$. Now, upon adding β_1 (= A) in the CGPA calculations, $\alpha^* = (15*3 + 3*3 + 3*4)/21 = 3.14$. Note that the optimal α^* of 3.17 is never obtained during this reverse process.

Remark 5: A Spring 2020 course grade β_j with quality points > α may not always result in an optimal α^* if retained as a letter grade.
We emphasize that Remark 5 does not contradict Remark 3. Remark 5 is about obtaining an optimal α^* and Remark 3 refers to an increased α^* value. We provide an algebraic discussion of Remark 5 followed by a numerical example. Let β_1, β_2, β_3, β_4, and β_5 be the Spring 2020 grades sorted in non-increasing order of their quality points. Assume that $\beta_3 > \alpha$. This implies that $\beta_1 > \alpha$ and $\beta_2 > \alpha$. Since grades are in non-decreasing order of their quality points, $\beta_3 \geq \beta_4 \geq \beta_5$. However, for the sake of convenience, we will assume that $\beta_3 > \beta_4$ and that implies that $\beta_3 > \beta_5$ too. Using the *best grade first* approach from the earlier numerical example, $\alpha^* = (15\alpha + 3\beta_1)/18$. If $\alpha^* < \beta_2$, we add β_2 into the new CGPA calculations and the revised $\alpha^* = (15\alpha + 3\beta_1 + 3\beta_1)/21$. This is compared with β_3 and if the revised $\alpha^* \geq \beta_3$, we conclude from Remarks 2 and 4 that including β_3 into the CGPA calculations will lower α^* from its most current value.

A Numerical Example
Assume $\alpha = 3.25$ for a Freshman. During the Spring 2020 semester, assume that this student's letter grades for β_1, β_2, β_3, β_4, β_5 were A, A–, B+, B, B. It is easy to see that β_4, β_5 must be converted to CR. Based on Remark 3 and by visual inspection, it is easy to conclude that the grades A, A–, and B+ are *candidates* to be retained as letter grades. To calculate α^*, we use the *best grade first* method starting with β_1 = A. Thus, $\alpha^* = ((15*3.25) + (3*4))/18 = 3.375$. Although it is obvious at this stage that B+ is no longer a candidate (since 3.375 > 3.33) to be retained as a letter grade, we continue with the calculations. Next, we include β_2 = A–. The new α^* value (with β_1 and β_2) = ((15*3.25 + 3*4 + 3*3.67))/21 = 3.42. Finally, α^* value (including β_1, β_2, and β_3) = ((15*3.25) + (3*4) +(3*3.67) + (3*3.33))/24 = 3.41. This clearly demonstrates that the inclusion of β_3 (= B+) resulted in a suboptimal α^*. As in the earlier example, we calculate CGPA by reversing the order of the letter grades i.e., β_3 first, β_2 next, and β_1 next. The CGPA with only β_3 included is $\alpha^* = ((15*3.25) + (3*3.33))/18 = 3.26$. Adding β_2 into the CGPA calculations results in $\alpha^* = ((15*3.25) + (3*3.33) + (3*3.67))/21 = 3.32$. Finally, adding β_1 into the CGPA calculations results in $\alpha^* = ((15*3.25) + (3*3.33) + (3*3.67) + (3*4))/24 = 3.41$. It is to be noted again that the optimal value of $\alpha^* = 3.42$ is not obtained with the reverse process and does not provide a reason to convert β_3 to CR. Thus, we conclude that the *best grade first* approach is the only way to decide what grades must be converted to CR.

Remark 6: Maximizing Spring 2020 GPA may not necessarily maximize α^*.
We provide an algebraic discussion of Remark 6 followed by a numerical example. If the Spring 2020 letter grades are β_1, β_2, β_3, β_4, β_5, it is implied that $\beta_1 \geq \beta_2 \geq \beta_3 \geq \beta_4 \geq \beta_5$. Since β_1 has maximum quality points, the Spring 2020 GPA is maximized when β_1 is retained as a letter grade. If β_2 is also added to the GPA calculations, the new GPA

remains unaltered if $\beta_1 = \beta_2$ or decreases if $\beta_1 > \beta_2$. Thus, it is easy to see that adding any letter grade after β_1 will not increase the GPA. This however may not result in the optimal α^* value as evidenced in the example below.

A Numerical Example

During the Spring 2020 semester, let us assume that a Freshman's actual letter grades were A, A–, B+, B, C. By retaining A as a letter grade, the student obtains a GPA of 4. Including any of the other grades into the GPA calculations will decrease the Spring 2020 GPA to a value that is less than 4. Interestingly, maximizing Spring 2020 GPA does not necessarily maximize α^*. Assume $\alpha = 3$ and that the student is a Freshman having completed 15 credits before Spring 2020. Using the *best grade first* method, the α^* value (with only β_1) is ((15*3) + 3*4)/18 = 3.17. Then, the recalculated α^* (with β_1 and β_2) = ((15*3) + 3*4 + 3*3.67)/21 = 3.24. Similarly, α^* (with β_1, β_2 and β_3) = 3.25 which happens to be the optimal α^*. We do not consider grades B and C because their quality points are lower than 3.25. This example shows that it may be better to settle for a lower Spring 2020 GPA of 3.67 since that results in the maximum α^* at 3.25.

BREAK-EVEN ANALYSIS

We revisit the numerical example presented for Remark 5. Recall that with $\alpha = 3.25$, the grade B+ was not a good candidate to be retained as a letter grade as it reduced the α^* value from 3.42 to 3.41. If α were less than 3.25, then the α^* value (with β_1 and β_2) may have been less than 3.33 (the quality points for β_3 i.e., B+) and that would make B+ to be retained as a letter grade. Similarly, if α were much larger than 3.25, even a letter grade like β_2 (= A–) may not be suitable to be retained as a letter grade if the objective is to optimize α^*. For example, if $\alpha = 3$, then the CGPA (including β_1 and β_2) = 3.24. This means including β_3 (i.e., B+) into the α^* calculations will increase α^* from 3.24 to the optimal α^* value of 3.25. On the other hand, if $\alpha = 3.65$, α^* (with only β_1) = 3.71. Since 3.71 > 3.67, adding β_2 into the CGPA calculations will reduce the current α^* value of 3.71 indicating β_2 cannot be retained as a letter grade. A break-even analysis will provide the maximum α values below which β_2 and β_3 will be retained as letter grades. Since this break-even analysis is only for the numerical example from Remark 5, the focus will only be on β_1, β_2, and β_3.

This break-even analysis is to answer two important questions with respect to the numerical example. (i) What is the maximum α value below which β_2 (= A–) must be retained as a letter grade? (ii) What is the maximum α value below which β_3 (= B+) must be retained as a letter grade? To answer question (i), we use the inequality: $(15\alpha + 3\beta_1)/18 < (15\alpha + 3\beta_1 + 3\beta_2)/21$. Simplifying this results in $\alpha < (18\beta_2 - 3\beta_1)/15$. Substituting the quality points of β_1 (= 4) and β_2 (= 3.67) from the numerical example results in: $\alpha < 3.604$. This means so long as $\alpha < 3.604$, β_2 must be retained as a letter grade. To address question (ii), we use the inequality: $(15\alpha + 3\beta_1 + 3\beta_2)/21 < (15\alpha + 3\beta_1 + 3\beta_2 + 3\beta_3)/24$. Upon simplification, $\alpha < (21\beta_3 - 3\beta_2 - 3\beta_1)/15$. Substituting the quality points of β_1 (= 4), β_2 (= 3.67), and β_3 (=3.33) results in: $\alpha < 3.128$. This means so long as $\alpha < 3.128$, β_3 must be retained as a letter grade.

The α values of 3.604 and 3.128 are the break-even points. To understand it better, if $\alpha = 3.604$, then α^* (with β_1 included in the CGPA calculations) = (15*3.604 + 3*4)/18 = 3.67. This value is equal to the quality points of β_2 (= A–) from the numerical example. This essentially means that one is indifferent about retaining β_2 as a letter grade since its inclusion will neither increase nor decrease the revised α^* value. It also means that for all α values < 3.604, β_2 must be retained as a letter grade. Similarly, if $\alpha = 3.128$, then α^* (with β_1 and β_2 included in the CGPA calculations) = (15*3.128 + 3*4 + 3*3.67)/21 = 3.33. This value is equal to the quality points of β_3 (= B+) from the numerical example. This means one is indifferent about retaining β_3 as a letter grade since its inclusion will not change the revised α^* value. It also means that for all α values < 3.128, β_3 must be retained as a letter grade. This discussion is specifically for the numerical example presented for Remark 5. However, it is important to note that such break-even analyses can be performed for any student (Freshman or otherwise) with any number of credits completed and any number of credits taken during Spring 2020 semester.

CONCLUDING REMARKS

We believe our results make important contributions to existing knowledge in literature. Our results can be applied even in the future since the CR/NC policy has sufficient merit to be applied on a regular basis for certain special situations as explained earlier in this paper. We explored the mathematics of GPA/CGPA based on the CR/NC policy of Thomas Jefferson University. This is the first study of this kind and was motivated by a desire to understand the theoretical concepts involved in the optimization of GPA/CGPA. The Business School faculty at Jefferson wanted students to do more than just eliminate low passing grades. Upon investigation of this unique

problem, it was apparent that the students could take advantage of this policy. The main contributions of this paper are presented in the three sections preceding these conclusions. Also, Remarks 4, 5, and 6 in the Section, "*Properties based on the Mathematics of GPA/CGPA*" are important as they explain the *best grade first* method to arrive at the optimal CGPA. Being a student-centric University, we reached out to our advisees and guided them through this process of optimizing their GPA/CGPA. Some students were able to get on the Dean's List – an honor that was not possible for them without the CR/NC policy. A few students managed to evade the dreaded academic probation. Students with merit scholarships were all able to retain their scholarships. In summary, the School of Business faculty helped the students take advantage of the CR/NC policy and optimize their GPA/CGPA.

We reiterate that the assumptions made in the Section, "*The Arithmetic of GPA and CGPA*" were only for convenience. The main contributions of this paper would not change if we were to use a student having completed 16 credits (instead of 15 credits) or if the student were to take 18 credits in Spring 2020 (instead of 15 credits). Figure 1 would have looked a little different (due to different slope and different intercept values) but would still be a parallelogram. Also, if students were to use the Rule of Thumb with the CR/NC policy, the feasible area for the revised CGPA (i.e., α^*) would still be the upper triangle as in Figure 5. Lastly, Remarks 1, 2, 3, 4, 5, and 6 presented in the earlier section will also hold for such a student. This would be the case for Sophomores, Juniors and Seniors too – regardless of number of credits completed before Spring 2020 and regardless of number of credits taken during Spring 2020.

Finally, we present some student scenarios in an Appendix. These are examples of students who interacted with faculty before making their final decisions with respect to the CR/NC policy.

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APPENDIX

We present four student scenarios. We change the student names for the sake of their privacy.

Scenario 1

Cary Grant was a sophomore having completed 45 credits with a CGPA of 2.98 before Spring 2020 semester. His Spring 2020 semester grades were A, A–, B, B, and C+ indicating a GPA of 3.2 and a CGPA of 3.04. His advisor pointed out that if he converts his C+ grade to CR, his GPA will be 3.42. His advisor also recalled that semester's criterion to get on the Dean's List: a student must obtain a GPA of **3.5** by completing at least 12 credits of which nine credits must be letter grades. Robert's best *three* letter grades resulted in a GPA of 3.56. Robert was truly appreciative of his advisor's guidance and said this was the first and may be his last time to get on the Dean's List.

Scenario 2

Grace Kelly was a senior with a perfect CGPA of 4.0. The Spring 2020 semester was rough for her and she obtained grades of A, A–, A–, A– and B+. She told her advisor that she will retain only the A as a letter grade to maintain her 4.0 CGPA. Her advisor reminded her that she will not qualify to be on the Dean's List in that case. Grace said it was more important for her to maintain her perfect 4.0 CGPA. This was her last semester and she worked extremely hard to achieve this milestone. Grace understood the CR/NC policy and used it to her advantage.

Scenario 3

Don Triumph was a Freshman with a CGPA of 2.1 before Spring 2020 semester. His Spring 2020 grades were B-; B-; C+; D+; and D indicating a GPA of 2 and a CGPA of 2.05. Don was aware that a CGPA of less than 2 will put him on academic probation. His advisor reviewed his grades and asked Don to convert only his D+ and D grades into CR and that meant a GPA of 2.56 and a CGPA of 2.27 making his situation less precarious. Even a low grade like C+ helped Don pull up his CGPA. If Don had chosen only his two best grades of B– for letter grades, it would have given him a higher GPA of 2.67 but a lower CGPA of 2.26. It is interesting to note that even a low grade like C+ was valuable to Don but a high grade like A– was discarded by Grace to be able to maintain her perfect GPA.

Scenario 4

Jacqueline Kennedy was a Freshman and Spring 2020 was her *first semester*. This is a unique scenario because we assumed throughout this paper that a Freshman has completed 15 credits before the start of the Spring 2020 semester. Since this was Jacqueline's first semester at our University, she had no GPA/CGPA history with us. Her grades in Spring 2020 were B, B, B+, B+, and A-. While she has several options, let us discuss two specific options here. *Option 1*: Retain all letter grades and move ahead with a GPA of 3.27. *Option 2*: Retain the best three letter grades B+, B+, A- and converting the remaining two B grades into CR. This decision results in a GPA of 3.44 and thus appears to be very appealing. Her experienced and insightful School of Business advisor told Jacqueline that it is a little difficult to choose between these options. Jacqueline was convinced that Option 2 is the way to go and was surprised at her advisor's indecisiveness. Her advisor explained to Jacqueline that if she obtains poor grades the following semester, the currently appealing Option 2 would not be the best choice down the road. Assuming Jacqueline obtains grades of B-, B-, B-, B-, C in Fall 2020, then her GPA for that semester would be 2.54. However, her CGPA (including Spring 2020) will be 2.91 if she goes with Option 1 and only 2.88 if she chooses Option 2 in Spring 2020. Thus, retaining her two B grades as letter grades may seem sub-optimal in Spring 2020 but will benefit her in the long run if her GPA in under 3.0 in later semesters. Jacqueline was able to see her advisor's point and chose Option 1.

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Did COVID-19 Impact Student Learning in an Introductory Accounting Course?

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ABSTRACT

This study examines how performance on an introductory managerial accounting course's final exam was affected by the learning behaviors of students impacted by the COVID-19 transition to online instruction. Using a 2x2 design, we classify students into four learning modes based on the accuracy of responses to in-class polling questions and the viewing of instructor-created videos. Polling accuracy serves as a proxy for learner-to-instructor interaction and video viewing proxies for learner-to-content interaction. Results indicate that students who increased both types of interaction after the COVID-19 transition outperformed all others on the final exam. Likewise, those who increased learner-to-content interaction while reducing learner-to-instructor interaction also performed well, but at a lower level. Students who reduced both types of interaction underperformed the other two groups. The findings emphasize the importance of using mixed-mode teaching methods that increase learner interactions and enhance online learning.

Keywords: COVID-19, accounting, learner-to-instructor interaction, learner-to-content interaction, online instruction

INTRODUCTION

The COVID-19 pandemic forced educators around the world to abruptly transition their courses from traditional face-to-face instruction to nontraditional online delivery (e.g., Daniel 2020). The transition disrupted higher education and left many students struggling to modify their learning behaviors. This research examines the impact of changes in student learning behaviors after the COVID-19 disruption on exam performance in an introductory managerial accounting course.

The question we address is important to the future of the accounting profession because of the role accounting education plays in developing the supply of future accountants. Accounting programs must deliver effective learning experiences if they are to continue attracting high-quality individuals into the profession (e.g., Pathways Commission 2012). By extension, accounting educators must understand how the COVID-19 disruption impacted student learning behaviors, as well as the consequence of changes in those behaviors, if they are to adapt their teaching techniques to the new normal. Our paper seeks to shed light on this change and to foster innovation in the teaching of accounting and related business topics.

RELATED RESEARCH

Few studies to-date have examined the impact of the COVID-19 disruption on higher education and student performance. Tartavulea et al. (2020) surveyed 114 professors and 248 students in 13 European countries about the pandemic. Their results showed a move to largely passive delivery with reduced opportunities for interaction. Additionally, both professors and students indicated that they perceived online instruction to be less effective than face-to-face teaching.

Guo (2020) compared student performance in an introductory calculus-based physics class which moved its instruction from a face-to-face format to an online format during the COVID-19 pandemic. Guo found that students who regularly attended the online class outperformed those who did not. He also found that students who did not attend regularly perceived the course as more difficult and felt they spent more time on the class than those who attended regularly. Gou's findings, however, were based on only 21 students and his course provided limited opportunity for multiple types of learner interaction.

Beyond these two studies, most of the literature on the pandemic and higher education is largely descriptive and only a few studies are specific to accounting or business education (e.g., Aguilera-Hermida, 2020; Alqahtani and Rajkhan, 2020; Bao, 2020; Lowenthal et al., 2020; Pohle, 2020; QS, 2020; Maritz, 2020; Niemotko and Tolan,

2020; Sangster et al., 2020). A common theme among most of this literature, however, is a call for studies that examine the effectiveness of online instruction.

Effective online instruction requires student engagement, and engagement is generally best developed through interaction (Anderson, 2003). Before the COVID-19 disruption, most interaction took place in physical classrooms. The pandemic altered the delivery of higher education and, in so doing, impacted the types of interaction available to students. Moore (1993) identified three types of interaction inherent in effective online courses: learner-to-instructor, learner-to-learner, and learner-to-content. DeVries (1996) found that when at least one of these forms of interactions is incorporated into teaching, positive results are associated with student achievement and satisfaction. Lear et al. (2010) found that interactions with peers, instructors, and content help online learners create interactivity and a sense of community and that these correlate with positive learning outcomes.

Learner-to-content interaction is the most fundamental of the three types. The process traditionally identified as "learning" takes place when a student interacts with the subject matter or course content. Content can take the form of text, audio, video, graphic imagery or some combination. Learner-to instructor interaction is the type typically associated with the lecture format (many-to-one), but it can also occur in other forms (one-to-one) and either asynchronously (i.e., emails, discussion boards) or synchronously (i.e., online tutorials, videoconferencing, real time chats). Learner-to-learner interaction involves activity in which learners collaboratively gain mastery of the subject matter or course content (e.g., Bryant et al., 2005; Dutton, 2019).

Martin and Bolliger (2018) examined student perceptions of the importance of the three types of online learner interaction. They found that students viewed learner-to-instructor interaction as the most important, followed closely by learner-to-content interaction. When asked to rank various strategies for creating engagement in an online environment, students placed high value on synchronous meetings that required student participation (learner-to-instructor) and videos that supported a flexible approach to learning (learner-to-content). We build on these findings and examine how students adapted their learning behaviors in response to the COVID-19 pandemic in an introductory managerial accounting course. The course transitioned its delivery from face-to-face instruction to virtual online meetings through Zoom. The online meetings continued the best practices of the face-to-face class in that it required student interaction via in-class polling questions. Throughout the semester, students were also encouraged to augment their learning by viewing instructor-created videos of the course's content. The course we study, therefore, provided students with the two types of interaction considered necessary for successful online instruction: learner-to instructor and learner-to-content. Using proxy measure for these two types of interaction, we examine how students adapted to the online learning environment created by the pandemic and whether their adaptive learning behaviors contributed to effective learning.

EDUCATIONAL SETTING

In response to the COVID-19 pandemic, 10 sections of an introductory managerial accounting course moved from face-to-face instruction to online synchronous delivery via Zoom in mid-March 2020. The move to online instruction affected 1,019 business students enrolled in the course. All sections of the course were coordinated by the same instructor and initially were held on the campus of a large, public, doctoral degree-granting university having undergraduate enrollment of approximately 38,000 students. The university follows a semester system consisting of two 15-week terms, one in the fall and one in the spring. The spring semester in 2020 began in January and concluded in May. The introductory managerial accounting course we study is the second accounting course in a two-course sequence and its topics include job and process costing, capital budgeting, ABC costing, master budgets, performance evaluation, product costing and pricing, business decision evaluations, and cost-volume-profit analysis. Most of the students enrolled in the course are freshmen or sophomores.

Course materials included a textbook, which came with publisher-created learning aids, and instructor-created lecture notes, available to students on the course management system (CMS). Course grades were determined based on student scores on three exams, in-class polling questions, and out-of-class homework assignments. A small portion of the course grade was also based a student's video viewing, but this accounted for only 1.4 percent of the final grade. As an aid to learning, students also had access both before and after the transition to supplementary instructor-created videos embedded in the CMS. The length of each video ran between 15 and 20 minutes and included narration and handwriting in a style similar to that of an instructor giving a lecture while writing on a whiteboard. The presentation and content in the videos mirrored the in-class lectures in that they walked through the steps involved in performing various managerial accounting calculations, but they lacked polling or quiz questions

and instructor/student interactions. Collectively the videos covered all the material in the course. Viewing patterns of the videos for each student were tracked by the CMS.

Prior to the move from face-to-face instruction to online synchronous delivery, some students had viewed videos related to material tested on the first exam and some had responded to the related in-class polling questions. All students had completed the first exam and assigned homework. After the transition to online instruction, students completed two additional exams, as well as the remaining homework assignments and in-class polling questions. They were also encouraged to view the remaining videos. Both before and after the online transition, students were incentivized to attend the face-to-face and online Zoom meetings by including polling scores in the calculation of the final grade. Students were also incentivized to view the instructor-created videos, but this component of the course's learning activities accounted for only a small portion of the final grade.

METHODOLOGY

This study examines how performance on the course's final exam was affected by the learning behaviors of students impacted by the COVID-19 transition to online instruction. The managerial accounting course which we study had 1,019 students enrolled, of which 978 received scores on both the first and final exams. Using a 2x2 design (e.g., Mukerjee and Wu 2006), we classify these students into four learning modes based on two learning behaviors observed in the pre- and post-COVID-19 transition period: (1) the accuracy of responses to in-class polling questions and (2) the viewing of instructor-created videos. We treat polling accuracy as a proxy for learner-to-instructor interaction. We allow video viewing to proxy for learner-to-content interaction. Prior research shows that both types of interaction are important dimensions to the learning of complex subjects, such as accounting (e.g., Arbaugh and Benbunan-Fich, 2007; Strauss and Terenzini, 2007). Learning mode 1 is composed of students whose polling accuracy and video viewing decreased in the post-transition period. Learning mode 2 is composed of students whose polling accuracy decreased in the post-transition period, but whose video viewing increased. Learning mode 3 is composed of students whose polling accuracy increased in the post-transition period, but whose video viewing decreased. Learning mode 4 is composed of students who increased both their polling accuracy and video viewing in the post-transition period. Table 1 presents descriptive statistics for these modes of learning.

Table 1. Descriptive Statistics

	Learning Mode			
Learning behavior	1	2	3	4
Polling accuracy	Decrease	Decrease	Increase	Increase
Video viewing	Decrease	Increase	Decrease	Increase
Performance (mean / median)				
First midterm exam score	70 / 70	73 / 77	69 / 70	70 / 74
Cumulative final exam score	63 / 68	70 / 72	65 / 68	71 / 72
Change in exam score	-7 / -2	-3 / -5	-4 / -2	1 / -2
Sample n	302	294	150	232

Although the mean and median scores on the cumulative final exam were generally lower than those on the first midterm exam, the decline is within the historical range of scores for students enrolled in prior semesters. Similar to most accounting courses, the material becomes more challenging as the course progresses. Additionally, the cumulative nature of the final exam requires that students not only perform basic managerial calculations, but that they also exhibit an ability to integrate concepts across managerial topics.

The dependent variable in our analysis is *ExamDiff*, which measures the difference between a student's score on the cumulative final exam and the first midterm exam. The advantage of using a "change" measure as the dependent variable is that it allows each student to serve as his/her own control and, as such, it mitigates the role of unobservable factors that affect exam performance (Plosser et al., 1982). However, it does not control for ceiling effects or regression toward the mean. We address these concerns using the indicator variable *Achieve*, which

controls for differences in the four group's scores on the first midterm exam. *Achieve* is equal to 1 when a student's score on the first midterm exam is above the median, and 0 otherwise.

RESULTS

Table 2 reports the results of an ANOVA with *ExamDiff* as the dependent variable and *Learning_Mode* and *Achieve* as independent variables. *Learning_Mode* is a categorical variable having four levels corresponding to the changes in learning behaviors reported in table 1. Because the four learning modes have an unequal number of observations, the appropriate sums of squares test is Type II, which assesses differences between the least square means when *Achieve* enters the model before *Learning_Mode.* As shown, both variables are significant at the 1 percent level. The adjusted R-squared statistic for the model is 0.213, which indicates that the two independent variables are able to explain about one-fifth of the variation in *ExamDiff.* Supplemental analysis indicates that the interaction between the two independent variables is not significant and, as such, it is not included in the model. Significance levels are based on two-tailed tests.

Table 2. Effect of Learning Modes on Change in Exam Scores

	Dependent variable = *ExamDiff*					
Variable	**Df**	**Type II SS**	**Mean Square**	**F value**	**Pr > F**	**Adjusted R^2**
Learning_Mode	3	4584.73	1528.24	5.13	0.0016	0.213
Achieve	1	72016.34	72016.34	241.74	<.0001	
n=978						

*df= degrees of freedom; SS=sums of squares.

Table 3 reports the least square means of *ExamDiff* for the four learning modes, as well as pairwise comparisons between the modes. Least square means are more appropriate for pairwise comparison than arithmetic means because the number of observations in each learning mode is unequal. Directionally the least square means are similar to the arithmetic means (reported in table 1) for learning modes 1, 2, and 3, all of which display a decline in scores between the first and final exams. The least square mean of *ExamDiff* for learning mode 4, however, is also negative and differs directionally from the arithmetic mean, which is positive. This difference arises because the least square means are calculated after controlling for individual student performance in the pre-transition period. Among the pairwise comparisons, learning mode 4 is associated with a significantly smaller decline in *ExamDiff* than the other three learning modes. Conversely, learning mode 1 is associated with a significantly larger decline in *ExamDiff* than learning mode 2. Not significantly different are the declines in *ExamDiff* for learning modes 1 and 3, and 2 and 3.

Table 3. Pairwise Comparisons of the Effect of Learning Modes on Change in Exam Scores

	ExamDiff **Least Squares**	**Pairwise Comparisons** **Dependent variable = *ExamDiff***		
Learning Mode	**Means**	2	3	4
1	-6.58	0.0445	0.2215	0.0001
2	-3.73		0.6709	0.0454
3	-4.47			0.0372
4	-0.69			

Overall, students who elected to increase both learner-to-instructor and learner-to-content interactions (learning mode 4) continued to perform well in the course, with little difference between scores on their first and final exams. Interestingly, these students were not the highest scoring group on the first exam. But they responded positively to the COVID-19 disruption and adapted to the new learning environment by increasing their in-class participation and out-of-class study. In contrast, students who disengaged from the synchronous online instruction and reduced their out-of-class study (learning mode 1) were unable to maintain the scores they received on the first exam before the disruption. Consequently, their final exam scores dropped markedly from those on the first midterm exam. Our results suggest that had these students increased their out-of-class study, such as was done by students in learning

mode 2, they could have averted much of the decline in their exam scores even if they did not increase participation in the synchronous online instruction.

Our results also suggest that merely increasing participation in the synchronous online class was not enough to prevent a decline in scores between the first and final exams. Like students in learning mode 4, those in learning mode 3 participated more in the online class than in the face-to-face class. However, the mean *ExamDiff* for students in learning mode 3 is not significantly different from those in learning modes 1 and 2. One possible explanation for this is the tendency for learners to multitask during online instruction, possibly because instructors and peers are not physically present (e.g., Lepp, et al., 2019). Depending on situational factors, such as home life and broadband reliability, online instruction may also create feelings of frustration and fatigue, as well as burnout from "Zoom hangovers" (e.g., Lowenthal, et al., 2020). Our results suggest that asynchronous study, when used as a supplement to synchronous online instruction, counterbalances some of the negative attributes associated with online delivery and encourages, rather than discourages, engagement during the synchronous online instruction.

One concern highlighted by our study is the sizeable number of students who opted to disengage from the synchronous online class after the COVID-19 disruption. Students in learning modes 1 and 2, both of whom reduced their in-class participation after the move to the online format, comprised over 60 percent of the students enrolled in the course. While it is possible that the large number of students who chose to disengage from the online class did so because of changes in their personal situation (elevated demands at work, disruption in child care services, need to home school children, etc.) it is also possible that some found themselves suffering from Zoom fatigue after all their courses moved to an online format. Additional research on this question is warranted.

CONCLUSION

This study examines how changes in student learning behaviors affected performance on an introductory managerial accounting course's final exam following the COVID-19 transition to online instruction. Using a 2x2 design, we classify students into four learning modes based on the accuracy of response to in-class polling questions and the viewing of instructor-created videos. We consider polling accuracy as a proxy for learner-to-instructor interaction and video viewing as a proxy for learner-to-content interaction. We find that students who increased both types of interaction after the COVID-19 transition continued to perform well in the course, with little difference between scores on their first and final exams. Similarly, students who increased learner-to-content interaction, but who decreased learner-to-instructor interaction, also performed well, but at a lower level. In contrast, students who reduced both learner-to-instructor and learner-to-content interactions underperformed the other two groups. Our findings provide further evidence of the multidimensional nature of learning and reinforce the need for faculty to create engaging online content that allows for both synchronous and asynchronous study.

One limitation of this study is that it examines the performance of students in only one course during a semester marked by an unanticipated disruption. Another limitation is that we do not measure the extent to which a student increased or decreased learning behaviors. We are therefore unable to determine whether a threshold level of effort is required before a specific form of learner interaction impacts learning outcomes. We leave it to future research to re-examine this question across multiple courses and semesters, where both students and faculty are better prepared for the new virtual classroom. We fully expect rapid innovation in online instruction and a plenitude of research related to learner interactions. Our study is intended as a small step toward a better understanding of how the online learning behaviors of students affect learning outcomes. We encourage future research that builds upon our work, as well as studies that examine related topics such as the efficacy of online exams, virtual tutoring labs, and elearner-to-elearner interaction.

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A Pandemic Case Study of Stress and Modality in an Accounting Course: A Success Story

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ABSTRACT

This case study demonstrates a successful transition to online education for an introductory managerial accounting course in the face of a global pandemic. We detail several factors that lead to a successful transition. This article can guide educators in planning for the future. Student achievement is measured during the term using different teaching and testing modalities. These results are compared to prior terms using the same assessments. We find that students adapted well to online education. We also found that students struggled most with material that was delivered in person at the start of the transition but was tested online after the transition. This suggests that we should not underestimate the stress of the events unfolding as a barrier to student (and instructor) success and as a mitigating factor when judging the success of online learning during the pandemic transition period.

Keywords: online education, coronavirus/COVID-19 transition, stress

INTRODUCTION

The debate about the efficacy of online education continues in the midst of a global pandemic. A situation that has largely made online education the only viable delivery mode guaranteed to prevent the spread of COVID-19 between students and instructors. Many believe online education to be inferior to in person education (Bidwell, 2013; Grossman & Johnson, 2015), while others believe it can be just as effective (DiRienzo & Lilly, 2014; Holmes & Benders, 2012; Huh, Yoo, Jin, & Lee, 2008). This case study intends to show the circumstances where online delivery was effective. We caution against using results from early 2020 as an indictment against the effectiveness of online education without considering the effects of a global pandemic. Furthermore, one also must realize that certain elements contributing to success in some instances may not be present in all cases.

The class referred to in this research is an introductory level management accounting class at a large public university with an average SAT score of entering freshman (critical reading and math) of 1296 and an acceptance rate of 49%. The course is centrally coordinated across all campuses ensuring the assessments, grading, and content maintain uniformity regardless of instructor or campus.

The COVID-19 pandemic in the Spring of 2020 caused an abrupt switch to online instruction for the course and all other courses at the University (as well as many other universities in the United States) (Williamson, Eynon, & Potter, 2020). The timing of the transition for this course provided an outstanding (but otherwise disadvantageous) opportunity to evaluate both the effect of the pandemic and the transition to online education on student success.

We find that the stress of changing instructional modes during a global pandemic unlike any experienced in the students (or instructors) lifetimes was detrimental to student success much more than the course delivery mode. While this course had many factors contributing to its success as an online course that will be examined, the stressful environment of the COVID-19 pandemic still proved a challenge to student learning outcomes, particularly in the beginning of the transition.

LITERATURE REVIEW

Significant accounting research exists comparing the effectiveness of distance to in-person education. The findings are decidedly mixed, with some applications of distance education outperforming in-person education and other applications performing poorly when compared to in-person instruction (Bernard, Abrami, Lou, & Borokhovski, 2004). Furthermore, there is evidence that students in face to face upper level accounting courses outperform those in online courses, while for lower level accounting courses there exist no significant difference in performance between online and in-person courses (Chen, Jones, & Moreland, 2013; Huh et al., 2008). Finally, there is evidence that students in an online environment outperform those in an in-person environment.

One of the unique aspects of this case study is the lack of self -selection. Generally, students are free to self-select into online or in person instruction and the same factors that affect choice tend to influence student success. Students had no choice to participate in the transition to online education due to the coronavirus pandemic as all instruction was changed to online. A similar last minute (but before the semester) transition was documented in Racca and Robinson (2016) in which an in person required upper level accounting class was cancelled shortly before the semester began and all students enrolled online and the results were notably worse than when students were allowed to self-select. Other studies have attempted to control for self-selection and find that student performance was similar between online and in person modalities after controlling for student attributes that correlate with course selection (Coates, Humphreys, Kane, & Vachris, 2004).

While many studies find that online education can be effective, there are others that find online education is less effective than in person instruction. In a study of an online accounting principles class, Vamosi et al. (2004) found students to have lower score and lower satisfaction when compared to in-person instruction. Despite studies suggesting equivalency, there seems to be a significant amount of evidence that online education is not the best choice for all students in all circumstances (Bryant, 2018; Ferreras-Garcia, Ribas, Sales-Zaguirre, & Serradell-López, 2020; Racca & Robinson, 2016). Unfortunately, the circumstances of the COVID-19 pandemic of 2020 left instructors and administrators few alternatives.

Obviously, the circumstances caused by COVID-19 on the transition to online education are distinct from the normal development of online education. Within the ranks of both educators and the general public, significant differences in the opinion of online education still persists (Singh & Hurley, 2017; Taylor, Parker, Lenhart, & Patten, 2011). Despite general reservations, students who never wanted to take online courses and faculty who never wanted to teach online courses were pushed by circumstances into online education alongside those who supported it, favored it, and experienced it without regard to any personal preferences.

The transition came swiftly: students moved out of dormitories and apartments, faculty were sometimes required to abandon their offices, publishers moved quickly to offer free materials in the hope of getting long term courseware customers (Williamson et al., 2020). Those with online teaching experience and expertise were sometimes called upon to help others with little, while transitioning their own classes online over short time periods (Rapanta, Botturi, Goodyear, Guàrdia, & Koole, 2020). Some students struggled to find devices and secure reliable internet access, often needing to share devices and bandwidth with others, including family members who were transitioning to working from home. A global pandemic is something no students today have experienced, and the task of learning added to that stress can form a feedback loop that makes learning more difficult and stressful (Livana, Mubin, & Basthomi, 2020).

Healthcare researchers have found that the implementation of measures designed to curb the spread of COVID-19 have increased stress and have been detrimental to mental health (Pfefferbaum & North, 2020). Research has established that the effects of stress on learning is not always negative. The effect of stress on learning is different among individuals (Deese, Lazarus, & Keenan, 1953), it can have both a positive and negative effect with some stress actually increasing learning performance, though too much stress is detrimental (Joëls, Pu, Wiegert, Oitzl, & Krugers, 2006). Furthermore, Pakarinen et al. (2010) show how teacher stress can impact student performance.

COURSE BACKGROUND

The managerial accounting class outlined in this case study had enrollment of 440 students across 3 different campuses in Spring 2020, which is similar to the Spring 2019 enrollment of 425 students. All business majors and accounting minors are required to take the course and typically take the course in their fourth or fifth semester of enrollment for business majors, and slightly later for accounting minors.

The course is typically delivered by 6-8 different instructors but managed by a course coordinator who determines overall content of the course, the methods of assessment, and centrally administers the electronic elements of the course. Prior to the pandemic the course has only been offered online in summer sessions, with typical enrollments of 40 or less students.

The course management system used is Blackboard and is integrated with McGraw Hill Connect online homework system and electronic book. Students are required to have access and complete three types of assignments in Connect: smartbook adaptive reading assignments where students read the e-book and answer short questions, problems where students solve numeric problems, and quizzes where students answer multiple choice questions. In

both cases students are allowed to check their answers and rework problems for full credit. These assignments account for 17.6% of the final grade. In normal semesters a data analytics project submitted through Blackboard accounts for 7.4% of the grade, however during Spring 2020 this project was omitted due to time constraints. The average score for the work in Connect and the project is approximately 95%. Seventy five percent of the course grade is derived from three exams, which generate substantially all of the variation in course grades. The course assessment criteria as presented in the syllabus appear in Figure 1 below.

FIGURE 1. COURSE ASSESSMENT CRITERIA

PERFORMANCE EVALUATION	
Exam 1	250 points
Exam 2	250 points
Exam 3	250 points
Unit Quizzes	60 points
Project	74 points
Smartbook assignments (12x3)	36 points
Connect On-Line Homework (16x5)	80 points
Total Score Points	1000 points
Your score is based on 1000 points	

During normal circumstances, the exams are administered electronically in Blackboard using Respondus lockdown browser either in class or in an on-campus testing center depending on location. The exams consist of multiple choice and numeric response items drawn from multiple test banks. The exams contain 25 questions and last 70 minutes. After taking the exams students must make an appointment with their instructor to review the exam and are not allowed to take notes, nor are they allowed to keep scratch paper, which is collected and destroyed either in the testing center or the classroom. Between Spring 2019 and Spring 2020 the exams remained unchanged other than revisions to change numeric values in questions involving computations, as is standard practice.

Due to the Covid19 pandemic, in Spring 2020 exam 1 was administered in the class or testing center, whereas exams 2 and 3 were administered remotely using Respondus lockdown browser with monitor. This software prevents the student from leaving the exam to access the internet, while video recording the student and surroundings to verify the student's identity and prevent unauthorized materials and assistance.

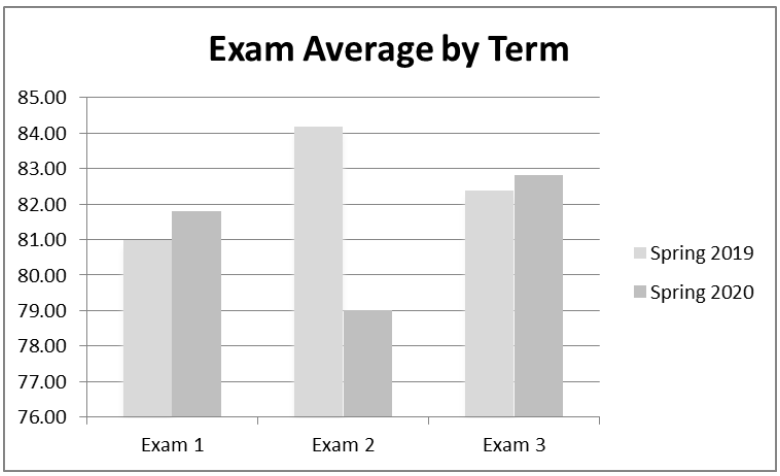
Due to the timing of the Covid19 pandemic there was a unique opportunity to capture data on material delivered in person and tested under normal circumstances, material delivered in person and tested under pandemic protocols, and material delivered online and tested under pandemic protocol. Due to the centrally coordinated nature of the course and the electronic administration of testing even under normal circumstances, this provides an intriguing opportunity to analyze the changes and compare to prior terms.

In almost all published education research comparing online education to in person education, the students are able to choose the course delivery mode (subject to constraints of course offerings and available space) so any inferences must consider that students who choose online courses are the students more likely to do well in online education. The removal of self-selection due to the pandemic and timing of the transition offers the opportunity to compare student performance across course delivery mode. Students kept the same instructor, grading scale, and assessments (other than the project which was cancelled to provide time for the transition). This provides an ideal quasi-experimental setting to exam the effects of course modality change on student performance, while considering the strong effects of a significant external stressor.

RESULTS AND ANALYSIS

There are significant differences in exam performance between Spring 2019 and Spring 2020, and those results are attributable primarily to the second exam. Figure 2 shows the average exam score by term for both Spring 2019 and Spring 2020

FIGURE 2 EXAM AVERAGE BY TERM



While average exam scores were similar for Exam 1, where material delivery was delivered in person for both terms, and for exam 3, where material was delivered in person in spring 2019 and online in spring 2020, there was a significant decline in performance on exam 2 when comparing spring 2019 and spring 2020. Table 1 shows Summary statistics and t-test results for differences between average test scores between spring 2019 and spring 2020

TABLE 1 EXAM SCORE SUMMARY STATISTICS

	Spring 2019		Spring 2020		Mean Difference	t	prob(t)
	Mean	Median	Mean	Median			
Exam 1	81.00	84	81.80	84	0.80	-0.82	0.41
Exam 2	84.19	88	79.01	84	-5.18	5.07	<.0001
Exam 3	82.39	84	82.82	84	0.43	-0.43	0.67

The mean score for exam 1 and exam 3 in Spring 2020 do not differ significantly from the mean score in Spring 2019, with mean differences of 0.80 and 0.43 greater in Spring 2020 whereas the median score is the same. The mean score for exam 2 in Spring 2020 is 5.07 percent lower and the median is 4 points lower.

The number of students scoring their lowest score on each exam are shown below in Table 2.

TABLE 2 STUDENTS ACHIEVING LOWEST SCORE ON EACH EXAM

	Spring 2019	Spring 2020
Exam 1	41.38%	30.24%
Exam 2	25.57%	44.54%
Exam 3	33.05%	31.03%

In the Spring 2019 term the highest percentage of students low score was on exam 1, with 41.38%, while in Spring 2020 the exam with the highest percentage of individual students low score was exam 2 with 44.54%. The distribution of individual student lowest exam scores is significantly different (probability < .0001). From Spring 2019 to Spring 2020 the proportion of students achieving their lowest exam score on exam 2 increased by 74% and rather than being the exam with the lowest proportion of individual students low scores it was the exam with the highest proportion of individual low exam scores.

CONCLUSION

The student exam scores provide strong evidence of successful online learning and the detrimental effect of stress on student success. The high achievement on the exam covering the material delivered online, coupled by the relatively low achievement on the material covered in person, suggests that the effect of stress is more important in evaluating transitions to online education during the COVID-19 pandemic than the actual mode of instruction, at least in environments where online education can be reasonably expected to work.

Several elements of the course and academic environment contributed to the success of the transition from in person learning to online learning. These elements may not be present in all environments and should be considered when evaluating whether online learning can be successful. Figure 3 below shows some of the factors present in this course that contributed to the successful transition to online learning.

FIGURE 3 CRITICAL SUCCESS FACTORS CONTRIBUTING TO ONLINE TRANSITION SUCCESS

Critical Success Factors For Online Transition	
1.	Instructor Experience with Online Education
2.	College Requirements for Student Technology
3.	Existing Exam Proctoring Solutions and Computerized Exam Delivery
4.	Use and Integration of Online Publisher Resources

Many factors contributed to the distance learning transition success, the first of which is the experience of the instructional team with online learning. Over half of the instructors had online teaching experience ranging from 1-10+ years. Two of the instructors were actively teaching online courses in the College's online only Master of Science in Accounting program and one was teaching the introductory managerial accounting course to MBAs at the time of the transition. The deep experience with online teaching of other courses allowed a more orderly transition without the extra stress of the unknown that faculty inexperienced with online education would experience.

The second important factor listed in Figure 3, is the college requirements for student technology. In order for students to successfully transition to remote learning, students must have the proper equipment to do so. The students in the College of Business are required (however this is loosely enforced) to have laptop computers meeting certain minimum specifications. Additionally, there were university wide provisions to provide devices to students not having their own for use during the remainder of the Spring term.

One of the worries about detractors of online education is the rigor and integrity (Singh & Hurley, 2017). Due to the large number of students, the managerial accounting class has been using computerized testing for over 2 academic years by Spring 2020. These proctored exams were administered in testing centers using university provided computers or in class using student devices (Windows Laptops, Apple computers or iPads) in the prior 4 academic terms and for exam 1 in Spring 2020. This testing regime made it easy to transition to online testing using the same exams, merely changing proctoring systems. These proctoring systems were already available due to the Universities investment in online programs. Combined with faculty experience, these already available tools made it an almost seamless transition to online testing. This mitigates any concerns about rigor or integrity since the testing is the same for online and in person and proctored in both cases.

The course was designed to make heavy use of the publisher resources available with the text. Other than the project and exams, which make use of the learning management system, all other graded work is completed in the McGraw Hill connect system. These resources make it easy to manage out of classroom work, provide immediate feedback, and require students to engage with the e-book through practice questions. The course has used the homework management system for over 5 academic years for homework problems and integrated the LearnSmart adaptive e-book assignments in 2018. Since the integration of the LearnSmart assignments in 2018, there has been a 57% reduction in failing exam scores. The deep integration of the homework with the e-book into the course was beneficial before the COVID-19 transition and proved to continue to be so after, as students were able to continue working their homework and using their e-book assignments without another difficult change in a time of many difficult changes.

Even with all these advantages, and eventual success, it should be noted that there was a significant drop in performance on exam 2, which cannot be explained by delivery mode given that the material was delivered in person. Perhaps, some decline in performance would have been observed even if no transition to online learning had

occurred given the extreme circumstances caused by the global pandemic. This seems plausible given the drop in performance on exam 2, for which the material was delivered in person.

In combination, the available evidence strongly suggests that even under very favorable institutional conditions the transition to online education under the stress of the pandemic was difficult for students and detrimental to success even for material delivered in person. In contrast to the performance on Exam 2, the performance on Exam 3 provides strong evidence of a successful transition to online education, with a caution that we have to consider stress, resources, and environment before we attempt to evaluate the success of online transitions.

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Thriving During a Crisis: Transferring Experiential Learning Online

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ABSTRACT

During the 2020 Spring semester, schools moved instruction online due to the social distancing requirements of the global COVID-19 pandemic and most decided to cancel all co-curricular activities. This paper addresses a rare example of moving co-curricular activities online, specifically the process of modifying a faculty-directed and student-planned professional development conference for business students in under one month. After introducing the purpose and history of the conference, the authors discuss the initial goals of this year's face-to-face conference, outline the necessary changes, and highlight the challenges associated with an online conference. Participants' feedback is then summarized. Finally, the authors discuss key areas in which the conference can be improved in the future, including (1) implementing a hybrid online and face-to-face format, (2) improving communications with potential student participants, and (3) capitalizing on available resources while reducing ineffective efforts.

Keywords: Online Conference, Professional Development, Online Student Engagement, Student Conference, Experiential Learning

INTRODUCTION

During the 2016/2017 academic year, School of Business Faculty developed an innovative approach to a professional development conference for their students – one that would be planned and implemented by a select group of business students. Recruitment for the first Student Planning Committee (SPC) occurred in Fall 2017, with the inaugural GEAR (Grizzlies Engaged, Active, & Ready) Conference the following Spring. The success of the conference carried through the 2018/2019 school year and into the 2019/2020 academic calendar. Interested students applied for the SPC and underwent an interview process. Those selected began planning for a Spring 2020 conference similar to those in previous academic years. Comprised of 16 students from a cross-section of business concentrations, the SPC engaged in an experiential learning opportunity that combined event marketing, budget construction, professional communication, and project management skills unique to this opportunity.

With more than half of the conference planned and approximately 5 weeks before the scheduled conference, our campus was closed to all face-to-face instruction and activities due to the COVID-19 outbreak. The SPC was presented with the option to complete alternative professional development assignments or transition to an online conference. They selected the latter, although we were genuinely unaware of the work involved in creating an online conference in such a short time frame. The paper that follows documents our transition to the online conference and analyzes the success of our efforts. We begin with a brief literature review and then continue into sections about transitioning the experiential learning components online, an analysis of the success and shortcomings of the conference, and a conclusion outlining advice for other business faculty searching for practical ways to engage students online and outside of traditional coursework.

LITERATURE REVIEW

While there is limited research specifically addressing student engagement in online extra-curricular activities, we briefly surveyed the extensive literature on student engagement in online courses. For an institution that did not offer any online courses, we were largely unfamiliar with the SOTL research in this area, and what we found surprised us. As we expected, research indicated that most students preferred the idea of face-to-face interaction (Weldy, 2018; Fish & Snodgrass, 2015). Students often perceived online classes as more difficult than face-to-face equivalents in part because of lower teacher presence and the feeling that they (the students) were responsible for "teaching" themselves (Jaggers, 2014). The perceived disadvantage of online courses is significant enough for many students that they select face-to-face courses despite lengthy commutes to attend in person courses on college campuses (O'Neill & Sai, 2014).

Perceptions of online courses and the reality of online courses differ significantly and are related to the instructional

methods used and students' familiarity with online education. Differences between perceptions and reality dissipate with increased exposure to online environments and the pedagogical approaches of faculty (Fish & Snodgrass, 2015; Wright & Holmberg-Wright, 2018), with students viewing online learning as more modern and useful (Lee, Stringer, & Du, 2017) and no perceived differences in difficulty (Wright & Holmberg-Wright, 2018). Synchronous virtual instruction yielded similar performance outcomes as traditional face to face instruction, although student perceptions of their engagement levels were lower in the online environment (Francescucci & Rohani, 2019).

Online professors are exploring ways of incorporating experiential learning into the online environment as well, which in theory, would increase engagement. The online environment allows students to use personal devices, specific software, apps, and virtual assistants. To some extent, this atmosphere can increase learner flexibility and up-to-date knowledge of students more than traditional textbooks (Leung & Cheng, 2019). Online discussion forums and current event assignments also contribute to online student engagement (Dixson, 2010). While students still report being more motivated and independent in the face-to-face delivery (Fish & Snodgrass, 2015), online classes are evolving and becoming equivalent options. Overall, much of the recent literature still supports some of the earliest findings – that the satisfaction of students in online courses is significantly correlated with course design, student learning styles, and instructor behavior including, but not limited to, synchronous delivery, instructor enthusiasm, feedback delivery, and engagement (Volery & Lord, 2000; Eom, Wen, & Ashill, 2006; Francescucci & Rohani, 2019), and online courses can be just as effective at educating students as traditional face-to-face courses (Robertson, Grant, & Jackson, 2005; Francescucci & Rohani, 2019).

Best practices in online teaching and learning, combined with mixed reviews of student engagement in the online classroom, are interesting but fail to directly address our issue at hand. Much of the aforementioned research occurred on campuses offering a mix of both face-to-face and online options, where it is suspected that students self-selected into online and face-to-face options as best they could based on their own preferences, learning styles, and constraints. There is significantly less regarding the efficacy of an online professional development conference for students.

Similar to skepticism of online courses, many presume that online conferences lack a desired level of engagement. There are unique challenges to the online environment including the absence of social cues and exchanges between participants (Kerr, 1986). Online conferences require more organizational and technological skills, and there is greater pressure to keep sessions lively, thus placing increased responsibilities on conference organizers and moderators (Kerr, 1986). At the same time, online conferences offer unique opportunities to increase interaction through live polling, direct links to participants' bios or contact information, and the potential of increased interaction between speakers an attendees (Anderson & Anderson, 2010). The addition of learning communities to online conferences also creates a greater sense of engagement and interaction (Miller, O'Brien, Kelly, & Blackler, 2004; Bell, 2005).

Although our transition online was not one of choice, our understanding of online teaching, engagement in online courses, and the pros and cons of online conferences increased significantly. The literature places our experiences into perspective while helping us identify opportunities for growth as we plan for future conferences. Through the discussion that follows, we provide further insight into the conference and the necessary adjustments when converting to an online experience.

CAMPUS OVERVIEW AND CONFERENCE PLANNING STRUCTURE

Our institution, a public, 4-year college built around liberal arts ideals and serving a minority-majority population with significant numbers of nontraditional and first generational college students, represents the norm in higher education today. As the number of students in college increases, the majority of the growth comes from populations that were previously underrepresented, and these students often lack the connections to help them succeed in the labor market after graduation. In an attempt to level the playing field, and recognizing that professional development efforts often benefit these lesser prepared students to a greater extent (Strada-Gallup, 2017), members of the School of Business Faculty developed a student-organized professional development conference (Wilsker & Napier, 2018). Although the conference is previously documented in the literature, the challenges of 2020 created a significant deviation from the established game plan. We briefly describe the initial construction of our SPC and their roles, followed by extensive discussion of role changes and obstacles we encountered.

Table 1: Subcommittees and Responsibilities

	Key responsibilities	Online Responsibilities Adjustment
Programming	1. Identify potential speakers that appeal to a diverse set of business students and span a variety of business-related themes 2. Select themes for breakout sessions (ALL students play a role in brainstorming session ideas) 3. Correspond with invited and confirmed speakers 4. Collect biographical information about each speaker for marketing purposes 5. Create a schedule for the conference 6. Assemble the conference program 7. Thank invited speakers and other guests for their participation 8. Provide a brief evaluative summary for each session	1. Reconnect with committed speakers to assess their interest in participating online 2. Coordinate with Board of Visitors (BOV) to recruit additional speakers with diverse topics 3. Act as liaisons between the SPC, College Institutions, and BOV members 4. Communicate through college institutions to get speaker biographical information 5. Adjust one-day concurrent schedule to 5-day non-concurrent schedule 6. Responsibility shifted to Marketing 7. Communicate through college institutions to send thanks 8. Group sessions by themes & provide evaluative summary based on survey data analysis
Operations	1. Create a budget for the event 2. Build a registration system that solicits students' preferences and attendance information 3. Develop break-out session surveys for students, faculty, and speakers and a separate overall conference survey for students and faculty and promote them during the conference 4. Lead conference registration and logistics on the day of event 5. Assign moderator roles in each of the sessions 6. Analyze general Conference student feedback post-event	1. Adjust budget to account for reduced funding 2. Abandoned in interest of exploring online delivery tools 3. No major change 4. Troubleshoot technology issues: a. Set up events and send out calendar invites b. Set up page on Desire 2 Learn (D2L), the school's online learning management system, to facilitate student access to sessions c. Shift from Teams Event to Teams Meeting d. Provide software training to the SPC and speakers 5-6. No major changes
Marketing	1. Design and implement marketing plan for the conference a. Create promotional flyers for classrooms b. Design the program based on information from programming c. Create a social media campaign on Instagram and LinkedIn 2. Create a short video about the conference and/or the SPC 3. Present at a faculty meeting in the School of Business 4. Pitch the conference in classroom presentations 5. Table at various School of Business events 6. Provide an evaluation of marketing techniques to be included in annual report by using data analytics from social media posts and survey results	1. Shift focus to inform students and faculty that the conference is still on, but moving online a. Create speaker biographies for D2L b. Compose a daily email program for students and faculty highlighting each day's events c. Multiply posts and stories to spotlight speakers and events 2. Shift focus to highlight solidarity in the face of pandemic and online development opportunity 3. No change – occurred prior to campus closing 4. Email faculty with information about the online Conference and encourage them to include it in D2L course 5. Occurred at several events prior to campus closing. 6. No major change

The Student Planning Committee (SPC)

The SPC is charged with planning, implementing, and assessing the GEAR Conference. The sixteen students enrolled in the 3 credit-hour special topics course led by the faculty directors were assigned to one of three subcommittees. The Programming Subcommittee was responsible for creating the conference agenda, operating as communication conduits between speakers and the SPC during an ever-changing situation. The Operations Subcommittee organized and implemented all conference logistics and conducted all back-office operations for the SPC. The Marketing Subcommittee promoted the conference across multiple platforms to build awareness and encourage student and faculty attendance. Tasks for each subcommittee are provided in Table 1 above with the second column specifically describing ways in which responsibilities changed as we transitioned online.

THE CONFERENCE

The Plan for a Face-to-Face Conference

Originally, the face-to-face, on-campus conference was scheduled for Friday, April 17th, 9:00am-2:30pm and included an opening plenary speaker, four consecutive breakout sessions each with 4-6 concurrent presentations, lunch, an alumni panel, a professional photograph booth for headshots and a closing plenary. In addition, the schedule included an elevator pitch competition for cash prizes, moderated by employers in the local community and sponsored by the Career Development and Advising Center, and a business pitch competition for the opportunity to represent the school at the state level, judged by the school's BOV and moderated by the Center for Emerging Businesses and Entrepreneurship.

The Transition to an Online Conference

After planning the conference for more than half a semester, school officials announced an immediate closing of campus, effective March 13, 2020. When presented with various options, the SPC chose to create an online version of the conference that would span the week of April 13 to 17, 2020. Originally a one-day conference, expansion of the time frame addressed the logistical challenges of connecting students and speakers in a synchronous setting, offering a series of sessions as opposed to any concurrent sessions. Despite the prolonged duration of the conference, the networking lunch, professional headshots for attendees, the Business Pitch competition, and the Elevator Pitch competition were all cancelled, with the latter two cancelled at the request of sponsoring entities on campus.

With less than 4 weeks to plan the conference, leveraging existing School of Business and college resources was crucial to compiling a set of speakers representing all 8 business concentrations and a variety of local industries. With the assistance of school administration and the institution's Office of Advancement, we invited members of the school's BOV who were generally eager to help following the cancellation of other on-campus speaking engagements. Additionally, our Business Relationship Coordinator helped identify candidates for our alumni panels, giving students an opportunity to interact with them in a semi-formal setting. These individuals joined a subset of our original invitees and subsequently invited guests to create an impressive set of speakers for the week.

Challenges in Online Conference Planning

When operating in a crisis situation without a pre-determined contingency plan, a number of unexpected roadblocks appear. The biggest obstacles we encountered were miscommunication on a number of levels and connectivity and technical issues. Our roles as faculty directors also changed dramatically.

With regards to communication, multiple factors affected our efficiency and effectiveness. For example, due to the relationship between the School of Business and our BOV, neither the SPC nor the faculty directors were granted permission to contact members of the BOV directly. The Office of Advancement required all communication to flow through their department. There were numerous meetings between the faculty directors, the School of Business administrators, and the Office of Advancement to identify potential speakers, topics, and discuss logistics. Since the conference is founded on the principle of experiential learning, as directors, we wanted to ensure students were still involved. As a result, SPC members drafted all communication to potential BOV speakers and sent it to Conference directors for preapproval. There were often necessary edits and several iterations of the process before an email was approved. The final document was then sent to the faculty directors who forwarded the email to the Office of Advancement, the party responsible for direct communication with the BOV. When members of the BOV responded, those responses went to the Office of Advancement, who forwarded emails back to faculty directors,

who then forwarded emails to students. Although all emails to external guests are reviewed by faculty directors, the previous process had students contacting speakers directly. This "new" process added several steps, thus slowing down the flow of communication between the speakers and the SPC. On occasion, messages were "lost" in the process.

The last-minute nature of these communications also created issues, as faculty directors often felt overwhelmed by communication coming from both sides and students on the Programming Subcommittee not always understanding the significance of creating a mechanism to capture the information flow. On our end, as 10 speakers were added in a short time period before the conference, communication often broke down between the Programming and Marketing Subcommittees, with the latter needing information on speakers, session themes/titles, and event times to properly promote the event. The breakdown of communication between subcommittees is likely the result of face-to-face classroom cancellations, as is the consistent failure of the Programming Subcommittee to follow through with project management suggestions from the faculty directors.

Based on a limited selection of school-licensed software, the SPC originally chose Microsoft Live Events as the delivery platform for speaker sessions due to its ability to track attendance, automatically restrict student attendees' use of videos and mics, and better control the presentation flow with regards to shared content and video of speakers. For each session, two SPC members served as either session moderator or Q&A moderator, with a third SPC member serving as back-up in case either of the assigned two experienced technical difficulties. Despite the advantages of Live Events, it required an institutional version of Microsoft that several of our speakers did not own, leading to major delays for two of our first four speakers. As a result, we shifted to Microsoft Teams for videoconferencing, which can be accessed by anyone, even without a Microsoft account. Although the new platform solved the connectivity issue, we faced new problems such as attendees accidentally muting presenter microphones, attendees entering late with microphones on, and a system that did not automatically track attendance.

Serving as a faculty director for this conference presents unique challenges even during normal circumstances. It requires lesson planning for an experiential learning course in addition to acting as project managers and laying the groundwork for the SPC to plan the conference. Given the shortened timeline and the loss of previously committed speakers, the directors had to make significant adjustments in how they communicated with SPC members and how they mentored them through a continuously evolving situation. The directors actually benefited from the two-week suspension of courses and used that time to prepare the SPC to the greatest extent possible, using one-on-one mentoring to explain the nature of an online conference as well as the methods of putting one together in the absence of a contingency plan.

EVALUATION OF THE 2020 CONFERENCE

This year, the Programming Subcommittee helped organize 22 sessions with a total of 31 speakers (26 external and 5 internal). Sessions were online and spread throughout the week, giving attendees the opportunity to attend more sessions than possible in a one-day event.

Attendance Data

In our 2018 and 2019 face-to-face conferences, attendance in morning plenaries ranged from 60-80 students, and attendance at the closing plenary in 2018 was less than 20 when students on the SPC were removed from the count. In these 2 previous face-to-face conferences, the median student attended 2 break-out sessions plus lunch with an alumni panel.

For 2020, excluding members of the SPC, 267 unique students participated, representing about a 20% increase over the 225 students from 2019. On average, students attended 3.4 online sessions – more than the average from previous years. At the same time, the median level of participation was only 2 sessions, representing a slight decline from 2019. Eighteen students attended more than 10 sessions, a feat not possible in the previous face-to-face format. The online platform also offered the novel opportunity to record the sessions for students who were unable to attend them live. If presenters agreed, sessions were recorded and posted on an internal site for viewing.

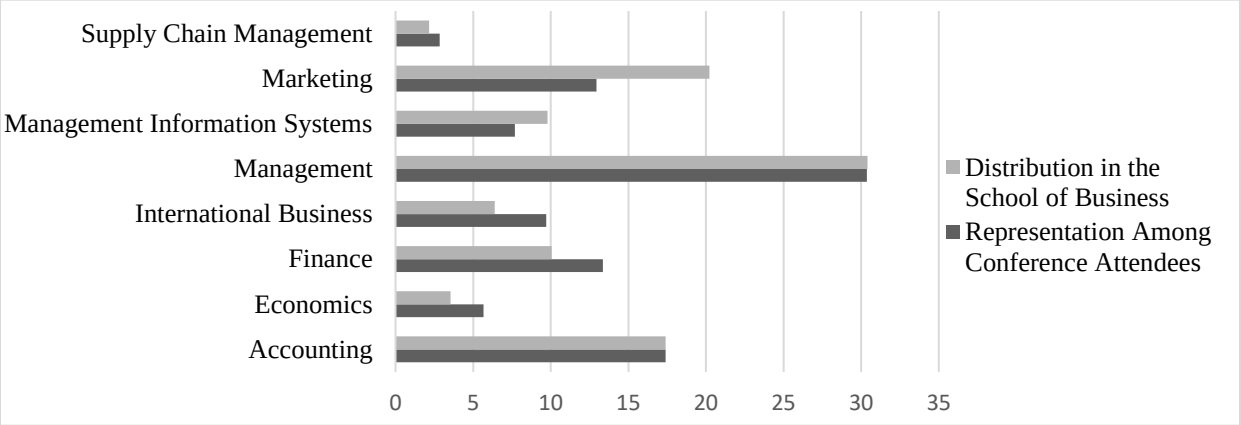
Differences in attendance between 2019 and 2020 may result from the following factors. In a face-to-face conference, there are costs associated with dressing in business casual and coming to campus. Once you undertake those costs for one session, the costs of attending a second session are significantly reduced. Plus, there is the added

benefit of lunch, thus increasing the likelihood of staying through the early part of the afternoon. Online, there are fewer costs for attending the first session – no commute to campus and no dress suggestions, thus reducing the cost of attending once. That said, there is no drop in costs for subsequent sessions and no incentive offered to stay for multiple sessions equivalent to the lunch available in previous conferences. As such, it may be that more people logged on for a single session than would have driven to school for the conference, but we were less successful in getting everyone that attended one session to attend multiple sessions.

Unfortunately, specific data for attendees during previous conferences was not recorded, but for the 2020 online conference, the SPC was able to maintain better records. Of the unique attendees, 12.7% were freshman, 38.1 % were sophomores, 26.5% juniors, and 21.6% seniors.

Figure 1 provides information of concentration prevalence of students in the school of business and of unique conference attendees. Management and Accounting are proportionately represented, Marketing is underrepresented, and smaller concentrations were each slightly over represented... Given that multiple speakers specifically addressed Marketing topics, it is unclear whether faculty from this discipline failed to promote the event (or offer bonus points) to the same extent as other disciplines, or whether there is some unobserved characteristic related to overall student engagement that may be correlated with the selection of Marketing as a concentration.

Figure 1. School of Business vs. Conference Attendance



The Use of D2L

Following the online transition, all School of Business students were enrolled in a conference-specific "course" in our regular learning management system, D2L. Not only does this provide a great marketing tool, but it's also another source of data as it tracks student activity and alerts all enrolled students when new documents are posted. Bios for the 18 external speakers were collectively the most accessed documents, with exactly 800 total views. Other frequently used resources on the site include links to the survey (accessed 122 times), views of the intro video (accessed 73 times), the program and the session links (each viewed 65 times), and lastly, views of the "How to Join Microsoft Teams" document (accessed 27 times). We should also note that each day's presentations and links to join were posted in an announcement that would push out as a notification to students' phones if they installed the app and opted in. As such, it is possible that more students used the information on D2L than what our statistics include by using notifications for links and reminders without going to the D2L site specifically.

With an online conference and the use of D2L, we were able to record sessions and post them for an internal audience. In the one week following the conference, recordings were accessed 397 times (including the alumni panels).

Attendee Satisfaction

Data on individual students from the School of Business was limited, but we collected feedback surveys following each break-out session (except the alumni panels), providing a valuable second data source. With a response rate of 26.5%, the information proves useful in evaluating the effectiveness of the online conference.

Several questions addressed the technological aspects of the conference. The overwhelming majority of respondents (91%) indicated that they could clearly hear speakers and see the screen, although 9% still reported issues with visual or audio quality. One-fifth of respondents indicated that they could not ask questions during the presentation, although the reasoning is not straight-forward. Students were encouraged to ask questions via the chat option rather than with microphones, and instructions for accessing the chat box were provided at the start of each session. It is not clear whether some attendees misunderstood the instructions or had limited access to chat as a result of accessing Teams on mobile phones or via the web app. Finally, we did not have time for all speakers to answer all questions, so it is also possible that students answered this question thinking about whether their actual questions were answered rather than their technical ability to ask questions.

In addition to technological quality, students were asked to Agree or Disagree with statements regarding their engagement during the session (attendee satisfaction) and their perceived relevance of the topic. Sessions were then grouped into themes. The percentages below represent the proportion of students who agreed to feeling engaged and believed topics were relevant, respectively. Students showed the most satisfaction with two economic sessions offered by various leaders from the local Chamber of Commerce. While the students are unlikely to pursue careers in economic development, they likely appreciated the breadth and insight into our local community. Virtual Enterprising and Supply Chain were among the lowest rated, likely the result of a narrower appeal.

Table 2. Attendee Satisfaction and Topic Relevance

Themes	Attendee Satisfaction	Topic Relevance
Investing	93.8%	91.4%
Leadership	88.9%	95.2%
Virtual Enterprising	84.1%	88.9%
Community Outreach	90%	88.5%
Economic Development	95.8%	96.1%
Soft Skills Development	91.6%	97.4%
Supply Chain Management	89.9%	90.8%

In 2018, more than 90 percent of attendees reported being satisfied and finding the topic relevant in all but one session, suggesting ratings were slightly above those in the 2020 online conference. That said, it is difficult to know whether differences in satisfaction are the result of the online format or students attending sessions which were less applicable to their career goals. In other words, once students chose to attend the face to face conference, they had a choice of concurrent sessions. There were not multiple choices for any given time period in the online conference.

Following the conference, an overall survey was sent to all participants, with an 11.2% response rate. All of the respondents rated the conference as either excellent (83%) or good (17%), with all but one respondent saying they would encourage other students in the School of Business to attend a future GEAR Conference. Half of respondents rated the 2020 online conference as "much better" than the in-person format of previous conferences, while the rest rated it as "about the same" or "somewhat better." Notably, students seem much more concerned with the timing of sessions rather than their format since 84% of respondents indicated that they would be likely to attend both online and face-to-face as their schedule permits; only one respondent expressed an exclusive preference for face-to-face sessions. Respondents enjoyed the convenience of the online format as it provided scheduling flexibility and improved accessibility, but state that connectivity issues are a disadvantage over the face-to-face format. That said, the vast majority of students appeared to accept the online approach and reported positive experiences with the conference.

Student-Specific Responses

Students participating in the session evaluation survey were also asked a series of questions to help us better understand our audience, their motivation to attend, and the usefulness of various marketing tools. Because students could complete the survey for multiple break-out sessions, duplicates were removed using reported emails and recorded IP addresses. While we understand that the session survey data is not necessarily representative, it remains the most descriptive data available.

Demographics

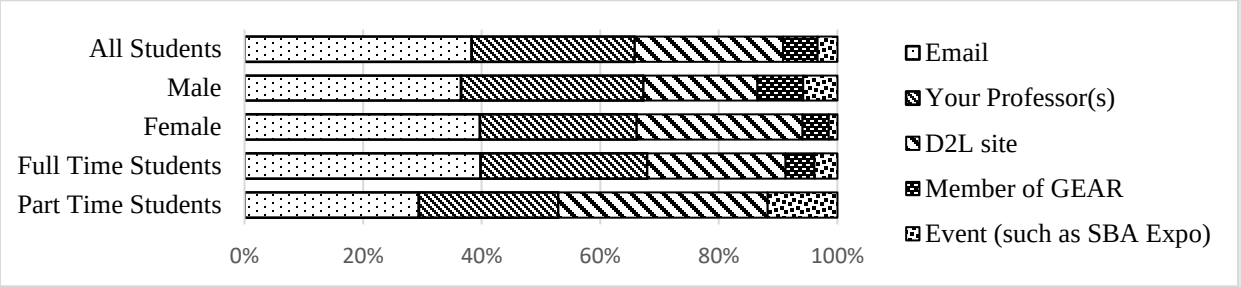
With regards to demographics, students identifying as White or Hispanic were roughly proportional to the school's racial composition. Black/African American students were significantly underrepresented, while Asian students were over-represented. Future marketing techniques might target specific populations to increase the representativeness of those in attendance.

Marketing

Students were asked about which method of communication (D2L, announcements through faculty, emails, etc.) they received first. Based on responses, faculty members are still our biggest ally in transmitting initial information (57.6%), followed by email (18.9%), the D2L site (10.8%), and a member of the SPC (8.9%). Interestingly, not a single student reported social media. It should also be noted that the D2L site was not created until campus events were cancelled. In planning for 2021's conference – whether we are restricted to online, face to face, or allowed to have a hybrid, we will likely utilize the D2L platform earlier in the semester as a means of communicating information directly to students. We expect this to change initial sources of information significantly.

Our final table compares the usefulness of marketing tactics according to the session evaluation surveys. The full sample is represented in the first row, followed by a gender division and a full-time/part-time status differentiation. Despite professors often being the first line of information, a slightly larger group identified emails as being the most useful, followed by professors. This might make sense as daily emails contained information about each of that day's speakers and the links to join. Interestingly, males were slightly more likely than females to suggest that faculty members were more helpful than emails, but significantly less likely to report D2L as the most useful. The difference between full- and part-time students is more significant, with part-time students less reliant on emails and professors – the latter of which makes sense since they have fewer professors – and approximately 40% reporting D2L as being the most useful source of information.

Figure 2. What is the Most Useful Source of Information?



Although we created social media accounts on both LinkedIn and Instagram, neither approach really had time to take off. It's not clear that students are using the same social media outlets that they did a few years ago or that they wish to follow school programming on it. Social media was not a significant source of information for any attendee.

Motivation

Students were also asked about their motivation for attending. Because motivation could change from one session to the next and several motivations could coexist, all responses to this question were recorded. Among the most frequent responses to what motivated attendance were "Interest in Topic" (144) and "Interest in Speaker" (139). Also important are direct incentives with 102 students selecting "Professor Offered Bonus Points for Attending Any Sessions" and 48 selecting "Professor Offered Bonus Points for This Session." Twenty-eight students also responded that they were required to attend a specific session, and an equal number were motivated by a positive GEAR experience in 2018 or 2019. Again, these responses are only from those that completed the survey.

CONCLUSION

When COVID-19 struck the US, our university-system mandated a remote learning shift. This significantly altered plans for a one-day professional development conference organized for business students by business students. With no contingency plan in place, a group of students and faculty responded to the challenge by adapting a one-day face-to-face conference to create a week-long online experience. This shift online combined with the tight timeframe to

adjust required a number of alterations, some of which were made intentionally, while others were made out of necessity. Whether the online format is something that will be implemented out of necessity or by choice in the future remains to be seen, but the lessons learned indicate that it is a format worth pursuing in the future.

Based on our experiences in 2020, future iterations of the conference will likely take on a hybrid form. The on-campus component would likely occur on one day and include concurrent sessions, lunch, mock interviews and the business pitch competition. The online component would still include live sessions spanning across a variety of days and times and recorded for maximized student reach. Although we believe that concurrent sessions could be productive in an online setting, scheduling events at unique times allows faculty directors to be more present in each and likely increases online attendance. It is also possible that an online conference could support business pitch and elevator pitch competitions with sufficient planning. We believe, however, that a hybrid system provides the benefits of face-to-face interaction, engagement, and networking, while simultaneously offering students the flexibility to participate if they are unavailable during the one day, face to face format. Total participation would likely be maximized. A hybrid system would also incentivize students to attend more than one or two sessions.

This year's conference has highlighted the importance of providing students with information in an efficient way, regardless of format. Since students overwhelmingly cite email, professors, and D2L as the most useful sources of information, we recommend diverting efforts away from social media in favor of these communication methods. We will establish the D2L "course" earlier in the semester, send bi-weekly email updates and coordinate more closely with faculty to promote the conference and the D2L course. By listing the conference next to their regular courses, we hope to assist students in building the connections between curriculum, co-curricular activities, and professional development. Connecting with students earlier will further allow us to improve on the biggest reason students cite for attending the conference: the topics covered. Using the D2L "course," we could survey students early in the semester to get their input on topics they would like covered.

In addition to increased use of D2L and emails, we hope more faculty will integrate the conference into their syllabi. This would allow students to plan to attend the conference earlier in the semester, making it less likely that they will skip it as final exams approach in April.

By focusing on forging an interactive relationship with student-attendees throughout the semester and integrating the conference into their curriculum, we hope to build better attendance and have a more profound impact on student outcomes. While the format of future iterations of the conference remains uncertain due to economic and social-distancing considerations of the ongoing COVID-19 outbreak, the directors intend to continue offering it due to its success and resiliency though format changes. While building a student-run conference constitutes a heavy workload for the faculty involved, we contend that the benefits of the conference – even online – justify the work effort, and that the planning of the conference by a Student Planning Committee provides a unique opportunity for experiential learning in an online format.

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Strategies for Effective Online Teaching in Higher Education

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ABSTRACT

In spring 2020, the COVID-19 required educators to make a quick shift to online education. The authors of this article are members of the Academy of Legal Studies in Business who recognized that there would be an increased emphasis on online education during the 2020-21 academic year and possibly beyond. The authors put together a panel where they shared with the membership techniques on getting a good start to online courses, humanizing the online course with discussion boards and other activities, preparing videos for asynchronous education, and increasing student engagement with gamification techniques. The authors also recommended tools for educators with limited experience to online education. This article is a summary of the tips presented during that panel.

Keywords: online pedagogy, hybrid courses, online courses, student engagement, gamification

INTRODUCTION

As the COVID-19 pandemic forced colleges and universities to shift to online education in spring 2020, many faculty members were caught off guard. Courses that they taught for years had to be shifted to an online platform in a matter of days. Faculty were encouraged to do the best they could under the circumstances to finish the semester. At some point, many faculty members were told to prepare to go online for the fall 2020 semester. Other faculty members were told that they could have in-person classes, but they needed to be prepared to go online on a dime. Rather than lament that education is substantially online and wish for the day that we can return to "traditional" learning, society expects higher education to adapt and improve the quality of online education.

Although teaching online and hybrid courses requires different tools than those used in face-to-face instruction, the expected outcomes are the same. The ultimate goal of any teaching relationship is student success. In order to take the first step in achieving this goal, the instructor must demonstrate enthusiasm and engagement, ensuring that students are comfortable and feel supported in the learning environment (Eom, Wen, & Ashill, 2006). Luckily, the necessary tools for facilitating this environment are simpler than expected.

The authors of this article came together at the 2020 Annual Conference of the Academy of Legal Studies in Business (ALSB). The goal of our panel was to give our colleagues basic guidance on effectively teaching online. Unlike the spring semester where faculty and students had an uneasy transition, a new semester provided the opportunity to build courses with online in mind. But with less than half of college professors having experience teaching online before the pandemic (Lederman, 2019), many professors needed some guidance. The purpose of this article is to compile some of the tips we presented for the members who attended the 2020 ALSB Annual Conference. We provide this in the hopes that those new to online teaching can gain ideas to jump-start preparing their course—hopefully with time for careful planning and preparation.

GETTING A GOOD START

"You only get one chance to make a good first impression" is as true in a virtual environment as it is when you meet your students the first day in a traditional class. This is particularly true in an asynchronous online class, where the instructor will not have any "live" interaction with your students. A "Start Here" or "Welcome" module in the online learning management system (LMS) can help support and guide students through the online environment, especially if they are new to online courses.

A thoughtfully designed Start Here module should introduce students to the instructor, each other, and the format, structure, and content of the course. When designing the module, include activities that give students low-stakes opportunities to post on the discussion board, submit a survey, and take a quiz, basic tools that they will be using throughout the semester. Such a module can also serve as documentation to verify student attendance—often necessary for financial aid and other purposes. We recommend the following contents for an effective Start Here module:

Welcome Announcement or Email
In a positive and reassuring tone, an instructor should use the welcome announcement to provide students with a high-level overview of your course; to acknowledge concerns they may have about the content, the online format, and technical requirements to access course materials; and to communicate his or her enthusiasm for the class and teaching. Instructors should consider including a summary version of the syllabus, with key information, course goals, and contact information.

Welcome Video
An engaging short video can provide students with more information about the class. Most LMSs will allow instructors to embed a personal welcome announcement into either the welcome announcement or into the content of your Start Here module.

Instructor Biography
Instructors should introduce themselves in a friendly and personable biography, accompanied by a recent photo. If available, they should also include a link to a LinkedIn Profile or a biography on a college or departmental webpage.

Student Introductions
One of the first assignments should be a discussion board, with several questions to prompt responses, where students can introduce themselves to the class. For information that students may not feel comfortable sharing publicly, such as their hopes and fears of taking the class or the event that has had the greatest impact on them in the past year and why, we recommend a survey where students can introduce themselves to the instructor.

Course Syllabus
In addition to posting the course syllabus as a comprehensive document with course goals and learning objectives, assignments and assessments, course and university policies, and a tentative schedule of topics, it may be helpful to "deconstruct" the syllabus by posting each of these components in more detail as separate and easily located documents or webpages in the Start Here module. Here, an instructor can supplement the contact information in the syllabus with an explicit communications protocols, e.g., how students should address the instructor, what information students should include in the subject line of any emails, how quickly you hope to respond, times or days that the instructor is unavailable, and whether the instructor will offer virtual office hours or synchronous drop-in chat, Q & A, or review sessions.

Navigating the LMS Video
A short video tutorial on how to navigate the course website is helpful for students who are new to online courses or unfamiliar with the features of the LMS. The conditional release feature is helpful to prevent students from moving too quickly by restricting access to some course materials until a specified date or they complete a designated assignment, but the instructor should show a sample and explain his or her rationale for limiting access. The video can also be useful in training students on setting notifications and alerts. Students should be instructed to forward emails sent from the LMS to a different email address that is checked more often. The navigation video may also include a variety of accessibility features that student can utilize that may enable them listen to posted documents instead of reading them, to view closed captioning while watching recorded lectures, to enlarge font or increase the speed of video playback.

Tips to Transitioning Online
In addition to the video, instructors should consider a one-page document listing the adjustments that students can make to their at-home learning environment and to their workflow planning in order to succeed online. Two or three sentences should outline the problem each tip is meant to alleviate and how it can achieve that goal. A variety of templates are available, but instructors can modify them as needed for their student population (7 Tips for Students Transitioning to Online Learning, 2020; Abel, 2020).

Keys to Succeeding in the Course
This is another single page document that outlines the practices and habits that will help students succeed in the course. Instructors may use feedback from previous students who have excelled in the course or they can engage in a reflective exercise asking how they would approach the class if they were a student. The document should be organized in a cyclical fashion, either around times when the class meets, if synchronous, or anchored around a weekly routine. The goal is outlining an "order of operations" for the various sources of instruction—textbook, recorded lectures, study guides, etc.

Introductory Assignments
To help ensure that students have read and understood the course information provided, end your Start Here module with a syllabus quiz. In addition, we recommend adding a calendar assignment for younger undergraduate students and other learners who lack time management skills. When students plan class prep, synchronous sessions, video lectures, assignments, and studying alongside their other responsibilities, they can stay focused on the class in the absence of pre-planned class meetings.

To maximize the support provided by these documents, instructors should post a weekly announcement in the LMS outlining the relevant events and deadlines. This announcement serves as a reminder and corrector of any errors or omissions in the student-made calendar. More importantly, it is another way of staying connected with and providing support for students in the absence of in-person meetings (Ma, Han, Yang, & Cheng, 2015).

HUMANIZING AN ONLINE COURSE WITH EFFECTIVE STUDENT ENGAGEMENT

As evidence in our discussion of the Start Here or Welcome module, there should be a strong emphasis on connections, both between faculty and student and between students and their peers. Humanizing online courses involves creating and supporting the connection between instructor and the learner. Preliminary research provides two dimensions: the social dimension and the cultural dimension.

Teacher presence is the instructor's design and implementation of a pedagogical strategy (or strategies) that facilitate student interaction and engagement with the course material and with each other in ways that promote student's continual participation in the learning environment (Anderson, Rourke, Garrison, & Archer, 2001; McKerlich, Rils, Anderson, & Eastment, 2011). In the face-to-face classroom, faculty use physical presence to help establish their role in student learning. In an online classroom, instructors must use factors other than physical presence to demonstrate presence in that classroom. Teacher presence requires that the instructor use technology and media in a way that facilitates multiple interactions with learners without creating a barrier between the technology and student engagement with the material. Social presence has been defined as relating to the communication method.

In a meta-analysis of studies comparing online to in-person courses, the U.S. Department of Education found that there was no significant difference between student achievement in online and traditional courses, although a small increase was noted for hybrid courses that combined the two methods. However, when these studies were further analyzed by at-risk student populations and full-semester courses, those gains disappeared (Jaggars & Bailey, 2010).

Xu and Jaggars (2013) expanded on this in a study that analyzed and compared student outcomes in 500,000 online and in-person courses for students in two-year colleges in Washington State. They found that while all students did less well in online courses, some student groups were more negatively affected by taking courses in this mode. This study confirms prior findings in previous smaller studies, which also found that students from at-risk demographic groups and introductory courses had lower performance in online courses compared to other students, thereby exacerbating the well-documented achievement gap in higher education (Kaupp, 2012; Xu & Jaggars, 2011, Terenzini & Pascarella, 1998). Increasing the students' connection between the course material and cultural information was presumed to increase their connection to the course.

It is in that context that Dr. Jones developed an interactive, multi-touch teaching strategy to promote student engagement with the course, material and with each other. Some of the strategies were employed early in the semester (during the first 3 weeks). The early semester strategies included:

- Pre-semester email to students to introduce the course, introduce the instructor, deliver the syllabus and note when the course would be available to review;
- Syllabus structure: A friendly syllabus that violates the grammar conventions by addressing learners as you and the instructor as I, and a liquid syllabus that students can access without logging on to the LMS (Pacansky-Brock, Smedshammer, & Vincent-Layton, 2020);

- At least one email to each learner during the first two weeks about the work they have done (e.g. feedback on their introduction to their group, response to a comment they had posted on the discussion board, etc.), and emails to students who had not logged on in the first four days;
- Asking students to post introductions and identify their personal pronouns (e.g. she/her; they/them; he/him; her/they, etc.);
- Multiple announcements that include a highlight (usually a recent current event), a summary of activities completed during the previous week and activities to work on during the upcoming week; and
- Dividing students into smaller learning communities of four to six students.

Additional strategies throughout the semester include developing case scenarios from multiple perspectives, announcements that refer to exemplary performance by specific students or groups, and posting sample assignments from students/groups (with permission).

An important part of humanizing the online learning environment is the effective use of online discussion boards. When used effectively, online discussion boards can help instructors to bridge the pedagogical gap between face-to-face and online learning by encouraging active student engagement.

Conceptually, discussion boards are not new; however, a variety of platforms allow instructors to use them in novel ways to create online forums for the dynamic exchange of ideas. The capabilities of Blackboard and Canvas, the "old guard" of LMS, can be used in conjunction with a variety of other platforms to expand their interactive capabilities. Among the many options available is the cloud application VoiceThread (2020), which expands the ability of students to "communicate, collaborate and connect" by providing a platform where students can comment on multimedia using voice (with a mic or telephone), text, audio file or video (via a webcam). Another promising application for business law courses is Hypothes.is (2020), which can be used to allow students to synchronously annotate cases.

In spite of the proliferation of online technologies, securing student participation in online discussion board forums can be a significant challenge. In meeting this challenge and creating effective discussion boards, the "why" is just as important as the "what." Instructors should consider applying a backward design model to create a purpose driven discussion board. Community building, conversation, fostering student engagement with the subject matter and critical thinking, as well as making real world connections with the subject matter, are but a few goals that instructors may target in the planning stages.

Instructors should, at the outset, clearly convey instructions for the discussion board to help students to understand instructor expectations. Guidance regarding "netiquette" encourages online participation by creating an environment of accountability and mutual respect, where students feel safe in expressing their ideas. In addition to posting their own threads responding to the prompt, students should be asked to respond to the post of at least one other student, which will facilitate "conversations" between students. Grading rubrics should be sure to reward students for posting strong well-constructed arguments and, for incorporating additional information that moves the conversation forward in response posts to their peers. Doing so will dissuade students from simply indicating tacit points of agreement.

Community building is an important aspect of online course design that can be facilitated using discussion boards. A discussion board can be an effective vehicle for class introductions. Platforms such as Voice Thread allow students to introduce themselves to their peers and then comment on their peers' introductions either by leaving a voice or written comment or by video. Even a simple Q&A discussion board, dedicated to student questions, becomes an elevated platform for "community" engagement, where students can freely address questions regarding the course to the instructor and answer questions posed by their classmates. Creating discussion boards titled "virtual buddies," provides students with a platform to further connect during the course through exchanging contact information.

For substantive discussion boards, no matter the topic, a good online discussion begins with a good foundation. Instructors should strive to stimulate student participation by creating lively, thought provoking prompts. Incorporating images, such as political cartoons, YouTube videos, Ted Talks, podcasts and other forms of multimedia, as well as additional articles, can help elicit student interest and provide added perspective for the construction of student responses. Deeper engagement with the subject matter may be fostered by discussion board prompts that ask students to "bring something" to the discussion. For instance, in a fundamentals of business law course, the prompt might ask the student to take a picture of or quote a product warning label and explain whether she believes the product would be unreasonably dangerous without the warning and if any other warnings should be

added. Such an assignment also helps students to see the connection between legal principles and real-world issues. Using intriguing legal issues may encourage student interest as well as critical thinking. An example of this is having students analyze negligence liability theory in the context of a hypothetical case involving a self-driving car that "decides" to charge itself by running its motor indoors, resulting in the asphyxiation of its owner. The current pandemic also raises a number of potential issues. For instance, can an employer compel its employees to wear masks or to get vaccinated or to have positive antibody tests? Contract issues, such as the applicability of force majeure clauses during a pandemic, abound. In the business law classroom, potential issues for discussion are almost limitless.

Ultimately, the goal of discussion boards is not to replace in-person student engagement, but to make such online interactions better, by motivating learners and enhancing student communication skills. When used effectively, discussion boards can play an important role in supporting online learning.

PRESENTING ON SCREEN

While the focus of this article so far has been on engaging with students, an online class must have content. For many online instructors, this consists of lectures presented on screen. This can take many forms, both synchronous and asynchronous. They include synchronous video conferencing to provide general feedback on research and writing techniques after the midterm exam, asynchronous voiceover PowerPoint in substitution of a lecture on assigned readings, and student watching of asynchronous videos recorded by others on policy topics relevant to the course content but not directly related to the technical content ordinarily covered in the course textbook or the lectures and classroom discussion. Students can be required to provide responses to questions about the videos in online discussion boards and the instructor then discusses these responses with the students in an in-person class. During the pandemic, all of these methods of online learning have been utilized, with many opting for the primary method of instruction as synchronous videoconferencing at the previously scheduled in-person class meeting times.

Synchronous and asynchronous components can complement each other and improve student motivation (Giesbers, Rienties, Tempelaar, & Gijselaers, 2013). Synchronous learning strengthens social support and class-wide relations, as it better simulates an in-person environment. Asynchronous learning promotes reflection and asynchronous discussion boards, if done right, can effectively support higher-level thinking skills. One study found that students who participated in synchronous learning, in a course that had an optional synchronous learning component along with an asynchronous component, made more total contributions and higher quality contributions to the asynchronous discussion board (Giesbers, Rienties, Tempelaar, & Gijselaers, 2013).

Synchronous instruction was an important component of this instructor's online teaching both prior to and during the pandemic. One recent technique that this instructor found improved student satisfaction, and for which the instructor received positive student feedback, was the use of an electronic whiteboard in "presenting" the screen mode. When instructors "present" their screen, the students see what is on the computer screen rather than seeing the face of the instructor. Obviously, there is a loss of some of the social and emotional connection that a human face provides. However, presenting the screen allows the instructor to show the PowerPoint slides that would normally be shown in a class period and to use an electronic whiteboard, as noted above. The instructor may write and draw on the whiteboard and the students can view this as they would during an ordinary class period. This especially helps students who self-identify as visual learners. The Yale University Poorvu Center for Teaching and Learning (2020) provides examples of several variations of effective use of whiteboards, one of them is very close to this instructor's own practice even though the Yale instructor is from a completely different academic field: "A biology instructor uses both a whiteboard and a PowerPoint presentation in her lecture. She primarily uses the PowerPoint to convey information to students. She uses the whiteboard to emphasize key terms, expand upon examples from the slides, and actively involve students. She will frequently draw problems on the board for students to solve." This instructor uses both PowerPoints and an electronic whiteboard in synchronous instruction and also calls on students to talk through problems and draws the students' responses on the electronic whiteboard.

Voiceover PowerPoint recorded for asynchronous use has been shown to be as effective in conveying material as live videos because the student may pause the voiceover PowerPoint to better process the material (Schreiber, Fukuta, & Gordon, 2010). For most effective learning, videos should be short (6 minutes or less is best; 9 minutes or less is preferable; and certainly not more than 12 minutes) and focused on a single topic (Brame, 2017). To simulate a full lecture, one would need to post several videos. Surprisingly, this instructor has found that one does not need to post lectures totaling in length the full time of a standard two-day per week class (e.g., 75 minutes). With voiceover PowerPoint one can often effectively cover the necessary lecture topics in several short videos totaling half to three-quarters of the normal class period. The PowerPoint should be carefully drafted to only include important points on

each slide. Further elaboration is provided in the voiceover component. Besides posting a series of videos, the instructor can also post a complete set of PowerPoint slides that cover all of the videos, which students may download and use for note-taking and studying for exams.

OTHER TOOLS FOR ONLINE INSTRUCTORS

In addition to creating an appropriate environment for student transition, instructors face a myriad of problems in their own transition. We outline the primary issues below and provide solutions for each.

Managing Media, Presentations, and Interactive Tools

Seasoned instructors develop an intuitive sense of in-person classroom dynamics, switching seamlessly between lecture, PowerPoint presentations, handouts, and other media. Delivering these components synchronously using a videoconferencing software, however, provokes anxiety. Instructors fear that students will view their lack of proficiency in managing these systems as a reflection of their lack of proficiency in their area of expertise (Matthews, 2017).

The Solution

At the cost of losing PowerPoint's animations, videoconferencing tools allow presenters to upload their presentation into the meeting ahead of time allowing slide navigation without switching windows or using multiple screens. Additionally, paid services such as Mentimeter allow seamless integration of the engaging features discussed below into a presentation that otherwise operates like a PowerPoint (Mentimeter, 2020). Notably, however, in addition to the monetary cost, these services require set-up before the meeting. Users say it is worthwhile (Capterra, 2020).

The Low-Tech Solution

Instructors can offer extra credit to a tech-savvy student for uploading, sharing, and managing the PowerPoint and "handouts." Alternatively, instructors can post pre-record lectures for asynchronous viewing. Notably, separating the lecture into 6-minute videos greatly increases retention of student attention (Brame, 2017). Making lectures available ahead of time allows synchronous meetings to become a low-tech, interactive or group-centered question and answer session that improves rapport and student engagement (Martin & Bolliger, 2018).

Engaging Students and Holding Their Interest

The difficulty of facilitating in-person student engagement in the smartphone era fuels instructors' fear that the impersonal online environment, with muted cameras and microphones, will further decrease engagement (Bolliger & Martin, 2018).

The Solution

Take over their smartphone! Free and freemium websites can keep students engaged from their phones, while they attend class on their laptops. From anonymous polls (Poll Everywhere, 2020), to quick competitive quiz questions (Kahoot!, 2020), to a one-stop shop that does both (Mentimeter, 2020), easily accessible websites that require students to answer questions quickly hold student interest by presenting instant gratification and visual feedback of their standing relative to the class. These tools also serve as data-gathering formative assessments.

The Low-Tech Solution

Students can answer spontaneous instructor questions using the chat function instead of turning their microphone on. This allows instructors to "take the temperature" of the room in an environment that rarely provides the non-verbal communication available face-to-face. Encouraging an interactive chat community can also ease instructors' technological stressors: incentivizing students to answer each other's questions in the chat encourages communication about the class in favor of phone distractions.

Bring It All Together

Providing students with time-management resources and asynchronous lectures allows synchronous meetings to be shorter. Resisting the urge to "fill the time" with more lecture, instructors should instead afford students frequent screen breaks, encouraging them to stretch or engage in a minute breathing meditation. These tools require no effort from the instructor, but reduce student (and instructor) fatigue and allow for more engagement, attention, and community.

INCREASED ENGAGEMENT WITH GAMIFICATION

Finally, those new to online education will sometimes find it challenging to keep students engaged. We encourage the use of gamification to increase student engagement and interest. "Gamification is using game-based mechanics,

aesthetics, and game-thinking to engage people, motivate action, promote learning, and solve problems" (Kapp, 2012).

In brief, the classic anecdote regarding the law student's experience is a terrifying one. A dictator/authoritarian of a professor demands 100s of pages of reading and, in a Socratic inquisition, expects the delivery of mastery over a night's case briefings. While this model may have been effective for generations of students with dreams of the courtroom, for undergraduate business students for whom they most likely do not share this dream, but rather face a required course on their path to becoming a business person, this may be inappropriate.

In this final section, we propose a model that democratizes the classroom experience for the exploration of law and ethics from a student-driven perspective to support engagement, dialogue, and ownership of course content. A model where student "participants became the providers, as well as the consumers, of knowledge." (Jones & Graham, 2015) Ideally, by leveraging a more self-deterministic approach to the classroom, students will gain mastery through student-owned exploration and inquiry. (Deci & Ryan, 2004)

Game Physics

The choice of augmented or natural settings in a game can impact the user's experience. For instance, loosening the grip of gravity in a video game can expand users' ability to explore the world before them. Nicholson in A RECIPE for Meaningful Gamification outlines six factors for developing intrinsic motivation in a classroom setting: Reflection, Engagement, Choice, Information, Play, and Exposition. Through the classroom, students ought to Reflect on previous experiences and identify new interests. Successful Engagement amongst students exists where students discover and learn from each other through dialogue and interaction. A system that respects student Choice and autonomy is better suited for student learning. A student needs to be informed on how the course content and infrastructure apply to the goals and narrative of the course. Students should be able to interact and Play with the course content in such a way that facilitates the freedom to explore and fail within the constructs of the system created. Lastly, providing a narrative and Exposition for the world students will engage in and support them to create their own (Nicholson, Forthcoming).

While the implementation of these factors may entail systems for the use of Badges, Levels/Leaderboards, Achievements, and Points (BLAP) to promote short-term learning goals where students have no personal connections or intrinsic motivation, they can reduce intrinsic motivation and long-term interest in real-world applications. Where the goal is a long-term change, Nicholson advises to avoid BLAP elements and focus on the above mentioned six factors (Nicholson, Forthcoming).

The Instruction Manual

What follows is the infrastructure and implementation of Nicholson's factors, with the use of some BLAP elements, to create a student-driven and a faculty-guided system for the exploration of topics throughout business law and business ethics courses using discussion boards and other assignments.

The course's foundation is that completion of the course as provided in the syllabus will earn the student no more than 70%, a C, in the course. Students are expected to explore and contribute, and through such contributions, earn extra credit towards their final grade. Each assignment or discussion has a base number of points, and anything that exceeds expectations will earn additional points.

Choose Your Own Adventure

Early in the course, students will explore and select topics that will determine the course's landscape from throughout the gamut of subject matter available to be used in weekly/biweekly discussion boards. This is an excellent place for faculty to seed topics that need to be addressed from the course expectations and establish an overall narrative for the course. Narratives such as "Starting Your Own Business" and "Pitfalls of Entrepreneurship" have shown success. Providing a default list or successful pieces from past semesters will make this process smoother as the system is tweaked. When deciding the topic areas, consider creating continuity between assignments that consider industry trends, national or international implications, and digital perspectives.

With guiding multi-modal, current, and regionally-specific content such as videos, podcasts, and news articles, populating discussion boards will facilitate an open-ended conversation. Attempt to create a narrative through the discussion content and have students move through and interact with that narrative.

Establish a bare minimum, C, threshold for the course, which should include required topics and contribution levels, but beyond this, students should be able to choose which topics to participate in and at what rate. Caps on potential

extra credit earned, deadlines for contributions, and formal rubrics, with samples, should be in place to support student success.

For instance, each discussion is worth 3 points for a 500-word initial post and two additional interactions of sufficient quality; two additional contributions are available for extra credit points.

To facilitate live-discussions, likes, or upvoting (never downvoting) is suggested to identify the best comments for in-class interaction. Further, the use of student moderators who are expected to guide the topic area conversation and then deliver a presentation on the class' findings has been valuable.

Types of Adventures

Repetition can be stifling for students, so creating topic areas of interest and variance can keep the classroom invigorating. If a student makes an excellent discovery worth entertaining, create a Side Mission. If there is a significant crisis in the real world, for instance, an explosion in a warehouse in Beirut or breakout of an infectious disease that is bringing business to a halt, create a Chaotic Event that drops at 2 AM and is only available for 72 Hours where students need to address the crisis for the organization. Smaller and more specific Group Missions might be valuable for planning and implementing strategic decisions. The work product can be delivered in a variety of ways, live or prerecorded PowerPoint presentations, breaking news video announcements, formal memos to leadership, and so forth.

Closing Credits

This is a singular approach of gamification in a classroom setting. While the implementation has seen considerable revision since its first attempt years ago, each course, student body, faculty and semester moving forward will require further revision or rebuilding. For those who appreciate strategy and many others, we can promise that while the goal of such a system is to encourage student engagement and exploration, many students have commented on having had "fun" and so has at least one faculty member.

CONCLUDING THOUGHTS

Though our primary goal of preparing our ALSB panel and this article was preparing instructors to teach during the COVID-19 pandemic, we believe that the ideas presented in this article will be effective for teaching online, even when students return to the physical classroom. To teach online students effectively, instructors will need to adopt strategies to orient new learners, humanize the online environment, and maintain engaging course material. If successful, then instructors will be able to reach and educate students wherever they may be.

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Puoi fare lo sconto? (Can You Do a Discount?) – A New Model for Experiential Business Study Abroad

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ABSTRACT

This paper presents a new model for study abroad based on experiential learning literature. The study looks at one specific study abroad visit to Italy from a small Midwest US University, using a model in which students themselves were involved in the planning and execution process, and thereby constructivist learning. This model seeks to further enhance cross-disciplinary skills in a business study abroad course through the design of assignments and curricula that focus on leadership, teamwork, critical thinking skills and budgeting in an already foreign environment. The benefits that resulted and areas for improvement are discussed.

Keywords: Study Abroad, Curriculum Innovation, Curriculum Development, International Skills Development, Cross-Cultural competencies

INTRODUCTION

US Universities have long recognized the importance of sending students abroad and including it as part of their education. A significant amount of literature exists on the benefits that students accrue as a result of a study abroad experience. Students report three main reasons to join study abroad programs 1) to enhance cross cultural skills 2) to become more proficient in the subject matter and 3) to socialize (Kitsantas, 2004). Students cite various benefits from enhanced cultural awareness to being better prepared to face the world of work and numerous other benefits in such a field-based experience. Field-based learning provides an ideal environment for constructivist learning and promotes deep scientific understanding (Mclaughlin, 2006). This paper introduces a model of study abroad that could enhance experiential learning in an environment that is already considered a high impact practice.

LITERATURE REVIEW

The number of U.S. students studying abroad in 2017-18 grew 2.7 percent from 332,727 students to 341,751 students, representing about 1.7 percent of all U.S. students in higher education (NAFSA, n.d). Europe hosted 55% of those students, followed by 15% by Latin America. The majority of students that study abroad travel for shorter lengths of time (9 weeks or less). STEM, Social Sciences and Business were the major areas of study. (IIE Open Doors Report, 2014). The reasons schools have included Study Abroad plans as a part of their strategic plans, are many. Duke (2000) cited the need for increased US competitiveness in the global economy, the importance of foreign trade, growing ethnic diversity, and the need to meet changing demands as reasons for universities to espouse the study abroad tour.

Intercultural Understanding

Study abroad helps students develop increased cultural understanding - an important skill in a global world and this is possible only as even more students study abroad. Several authors have reported that intercultural understanding and appreciation of different cultures have been important learning outcomes. Williams (2005) stipulates that students who study abroad exhibit a greater change in intercultural communication skills after their semester abroad than students who stay on campus. Douglas and Jones (2001) report that students who study abroad develop a deeper understanding and respect for global issues. Ife et al. (2000) in a study to understand vocabulary development, conclude that the period abroad is an important factor, but so are the levels of enthusiasm and understanding it engenders for another country and its culture. Clarke III et al. (2009) found that students who study abroad may have greater intercultural proficiency, increased openness to cultural diversity, and become more globally minded than those students remaining in a traditional campus setting. Black and Duhon (2004) stipulate that a study abroad program enhances cultural awareness and personal development.

Professional Development

Literature is replete with the professional impact on a Study Abroad student's life. Lindsey (2005) found study abroad participants consistently indicating that they believe the experience improved their self-confidence, ability to handle ambiguity, insight into their own value systems, and overall maturity. Orahood et al. (2004) state that business students who have studied abroad are more open to internationalizing their careers. These students, due to the skills that they acquired while abroad, are the types of professionals that employers seek for international assignments and even for domestic assignments that require a degree of cross-cultural competency. Norris and Gillespie (2009) conclude that students with a study abroad experience shape their global careers better. Franklin (2010) concluded that study abroad has significant long-lasting career impact and professional applicability. Karen et al. (2011) reported that students' perceptions of global business competence was significantly increased. Limburg-Weber (1999) suggests that many students who study abroad experience both personal growth and academic benefits, including increased proficiency in a second language.

Short-Term Vs Long Term

It is a challenge to send more study abroad students over longer periods of time, like a semester or a year, although the benefits are obviously greater. However, statistics indicate that more students are traveling abroad for short periods of time with beneficial results. Anderson et al. (2006) suggest that short-term programs can have a positive impact on the overall development of cross-cultural sensitivity. Chieffo and Griffiths (2004) conclude that short-term programs, even as short as one month, are worthwhile educational endeavors that have significant self-perceived impacts on students' intellectual and personal lives. Hadis (2005) reports that studying abroad has a very positive impact on university students.

Existing models of study abroad

Overall, there is agreement that the benefits of studying abroad are many. A cursory search of syllabi for business study abroad programs reveal that most programs and their assignments are divided into three areas:

1. A pre-trip orientation and assessment: These include assignments like case studies and the economy in preparation for the upcoming trip.

2. Business visits to major companies in host countries that directly or indirectly require students to interact with business leaders and other foreign students. And visits to both educational and cultural institutions and often lectures at these institutions. Grades during the course include papers on the visits, interaction and representation of the University in terms of professionalism, and

3. Post-course reflections assessments in the form of an assignment. A lot of the planning for the courses happens in advance by the professor, and day by day execution is through a provider or the instructor.

DESIGN FORMAT

The model for this business study abroad goes a few steps further in the experiential learning area, where the students are themselves involved, in the planning for the course and in the execution while overseas. Students are divided into groups early and each group is responsible for planning for a different city and with a budget. There are some business visits that are pre-planned by the instructor, but students play a significant role in budgeting, leadership, communication with vendors overseas and negotiation. A cross-disciplinary approach that encourages students to be involved in multiple aspects of being abroad, is the focus.

Student Demographics

We demonstrate the case of one study abroad visit to Italy from the University of Wisconsin Parkside. Located in the economic corridor between Chicago and Milwaukee, UW Parkside is situated on 700 acres of prairie land. With a student population of around 4400, the majority being full time at 3300 students. The undergraduate student profile shows 46% males and 54% females. The average age of the Undergraduate population is 22 and one fifth of the population is over 25. 57% of the students are from low-income backgrounds. There are 160 instructional faculty and the student to teacher boasts a ratio of 17:1.

Study Abroad Course Demographics

The summer study abroad trip to Italy in 2015 was the third time that the University was offering this course. 11 students went on the course. Every student registered for the course that year was a business major or doing an MBA. 9 of the students were undergraduate students. Unlike previous years, there was an unusually small number of female students at 2. There were also 2 international students, which was also different from previous demographics for the same study abroad trip. The group was fairly diverse. The majority was white with two Hispanic students, one African American and one Asian. One was a non-traditional student.

METHODS

Logistics Overview

Recruiting for the study abroad trip began only in early spring of 2015. The dates for the visit itself were from the 25th June to 11th July. Students were required to pay a fee to the University to cover administrative expenses, study abroad insurance, all business visits, all in-country transportation, all hotel stays and most of the boarding. The students were required to book their own tickets and to arrive at Rome and most arrived at different times based on lowest costs of tickets they could procure or other plans they had after the trip. The trip itself was to cover five cities over the two-week period – Rome, Trento, Venice, Cosenza and Lecce. Students would stay at the Marriott hotels in Venice and Rome, the Grand Trento Hotel in Trento, the University dorm in Cosenza because of an existing collaboration with the University there and at a Bed and Breakfast in Lecce through personal connections that the instructor had in that city. There was just one male instructor for the course. Either a business visit, a tourist location, an educational institution or a Government agency visit was scheduled in each city. One day in each city was designated a free day to explore any specific activity that a student wanted although it was required to be done in at least a group of two.

Student Assignments

Academic*:* In the weeks leading to the trip, students were divided into four groups. Each group was given the responsibility for a city. The fifth city was the responsibility of the instructor. Each group had to research the city for history, culture, government, business and economy. Each group was also required to make a presentation about their city that counted towards pre-departure assessment. The four groups were Rome, Trento, Venice and Calabria. Each group researched and presented on the assigned areas of the city that also served as an orientation. They also had to read up on the companies the group was visiting. Students were involved in the planning and management of the course. The instructor worked with a language learning company to provide complimentary access to online Italian lessons for the students prior to departure. This was a recommended but not required assignment.

Logistic: During the weeks leading to the trip, teams were tasked with researching their city for activities to do outside of business, educational institutions or government visits, that were the responsibility of the instructor. There were free days and free evenings that class could decide to take advantage of, and looked to the advice and research of the city team. The city team was also responsible for all the logistics of the group within the city. For example, the team had to make sure that everyone left the hotel or lodging on time, had to find a suitable mode of transportation, negotiate with transportation companies as is possible in Italy, and locate the appropriate train platform or bus location to catch the next mode of transport to the next city. Finding appropriate and economical modes of transport was also the responsibility of the team. The train tickets, however, were booked in advance of the trip by the instructor and the study abroad office.

Financial: Another new feature in the group was planning the finances to stay within budget. A previous study abroad trip had gone over budget and the instructor reasoned that it was important to have students play a role in budgeting for the trip, so they have an opportunity to manage money overseas. This included conversion to euros from dollars, comparing prices with US prices and documenting receipts. Depending on the cost of living in each city and the length of stay, the instructor decided the amount allocated to each city. Part of each city budget went towards hotel stays and train or bus reservations that were made in advance. Other activities like food and sightseeing were the sole responsibility of the city team and were expected to be negotiated with vendors or restaurants, similar to how it would be done by Italians. Italy is a cash economy. Having students negotiate cash with vendors in such an economy, was an important learning objective, to truly understand business on the street in Italy. The average amount handed out to each group, in cash, was 2000 euros. With that amount, the city group was

responsible for finding appropriate restaurants for the group every day, spending money for sightseeing activities like a hop-on hop-off bus and other additional activities like transportation within the city. The idea behind building these responsibilities as part of the assessment was the learning outcome it would provide – in order to learn how to do business in Italy, students would actually have to do business with natives through negotiation, through bargaining and direct contact and handling finances in various types of businesses and situations.

There were a few additional assignments - one student with an accounting major was designated the overall accountant for the group, one was responsible for waking everyone up to catch appropriate trains or to get off a station, one was responsible for all the tips, and one for creating T-shirts for the trip. Students paid a small additional amount for the additional activities like tips and t-shirts.

Social: Building social skills and mingling with native Italians was another objective in the course which was assessed. Students were required to meet and interact with natives of each city they visited. This was required to be submitted as an interview assignment with questions covering their views on life, of society and of America. The intention was to reveal the perceptions that foreigners would have of the students' home country and to expand their world view and appreciate perspectives, both positive and negative.

Reflection

As postulated by Roberts et al. (2013), a reflections exercise was included for assessment. Although that exercise was not due till two weeks after the course, most students worked on daily reflections that contributed to the overall assignment.

Student Assessment

There were three levels of assessment:

1. Pre-trip assignments that allowed students to develop the background and academic knowledge in history, geography and economics of Italy. Students researched multiple areas and presented in groups
2. During the trip - Assignments like writing about companies visited, their actual activities and interviews with natives in each city. The instructor also assessed students for professionalism during visits.
3. Post-trip. Reflections assignment and photo book. Students were assessed with rubrics in eight different areas:

Pre departure

1.	Pre-departure Presentation	15%

During Tour

2.	Logistics and planning in City	15%
3.	Course Discipline	10%
4.	Course Participation and Flexibility	10%
5.	Company Notes (1 page per business)	10%
6.	Interview with native Italians	10%

Post Visit

7.	15 pages Reflections report	20%
8.	Photo Book with top photos	10%

DISCUSSION & OBSERVATION

Rome: Upon reaching Rome, students were on their own. The group met at the hotel lobby the first evening. Being the first group that was responsible for handling logistics, there was a period of general confusion regarding what

exactly was expected as the hotel was about 20 minutes away from the city. The group did start off with obtaining information from the front desk regarding the shuttle to the city and some basic logistics for moving around the city. A planned visit to the Senate had fallen through. So, there was some additional time for sightseeing. This was also the group that served as a test model for this type of study abroad experience. This resulted in greater pressure and expectations on that team. It also resulted in a general lack of communication about what to do, what kind of food to get for the entire group and how to optimize the budget and stretch the euro. However, in a day they started improving. That team collaborated with the entire group in order to arrive at a consensus for restaurants from different options the group offered, and other activities. The team did stay within budget in fact, within the exact euro! The team was also able to negotiate with the hop-on hop off bus service to obtain 12 tickets for the price of ten, essentially asking "*puio fare lo sconto*?" - can you do a discount - in Italian, and the vendors did. This resulted in an increased confidence to negotiate in other places, particularly because the students were not used to negotiating at a store or service in the United States. In the budget, the team also found that they had spent a significant amount of money on water because they ordered 4 Euro water bottles for everyone at each meal. This turned out as another important learning experience. The Rome team set the standards for how bargaining and negotiation were done in Italy through their experience, allowing other teams to build on that. In terms of time, there was a general agreement that things were not on schedule and several students were showing up late. But this was attributed to an entirely new learning experience in a new country. Rome had been a high-pressure learning experience.

Trento: On the night train to Trento, the Trento team used the experience of the Rome team in order to get a leapfrog experience in planning. They interviewed the Rome team for practices that worked and those that did not. After some discussion, they used a slightly different approach in planning. They budgeted for the lunch and smaller meals for the next few days and handed out cash as a fixed amount to each student per day. It also allowed students to budget for their meals and beverages themselves. Students had to return with receipts each evening. Students liked the idea because of the flexibility it offered in terms of choices of restaurants. And it was not necessary for everyone to go to the same place during the free times. Also, groups started spreading out in pairs to explore the city. By this time, the group had also gained experience to have the confidence to go out to the city in smaller groups. The Trento team also managed the days slightly differently, with each team member being responsible for activities on separate days, and managing the budget. For example, on the third day, which was sightseeing, one of the team members was responsible for organization and visit to the Dolomite mountains. With the help of the hotel manager, he negotiated to hire an entire bus just for the trip. For the larger dinners the group chose a different method for negotiation. They went ahead to scout locations and requested a discount *after* they had built rapport with the hotel staff and during dinner. In terms of time keeping, the group had picked up a little but there were still some instances of students arriving late, which was addressed by the instructor. On the last night, with the money saved, the team planned a multi-course dinner for the group at a high-end restaurant and stayed well within budget. Overall, the sense of accomplishment was high.

Venice: As expected, the next team exhibited more competitiveness. The Venice team started planning for their activities early during the train ride to Venice. They requested a meeting with the Instructor to go over some best practices and had several meetings among themselves to go over logistics. They collaborated and created a planned and actual budget for each day. The team approached the front desk of the hotel in Venice and purchased all the transportation for everyone for the next few days. This had been a point of stress for every group in the past. So this step helped everyone relax about purchasing tickets. The advantage for them, though, was also that such tickets were available at the front desk. Besides the regular planned visits to a glass blowing factory this team kept time and took charge of all activities including dismissing the entire group officially for free time, which by now had become a necessity. This group also built on the previous group's experiences by keeping and tracking time more rigorously and exhibited initiative in budget savings like purchasing water from grocery stores and sharing fruit from the hotel as snacks for the group. The Venice group ended up having more cash reserves than any other group.

Calabria: Only two students were responsible for Calabria. One of the disadvantages of staying at the partner university housing, was that transportation to the locations that the group needed to go to was not easily available. Although this allowed the group as a whole to appreciate how other students lived and worked in other countries, the flexibility for the Calabria team itself was greatly reduced, as the partner University had planned a number of activities and transportation to them, some as a surprise. This limited the responsibilities and opportunities for this team. However, the Calabria team did stay well within the budget by offering a free day and also cooking a barbecue on the beach for the group.

The select number of students handling activities for the entire group, like time management during the entire trip or handling tips did extremely well in their assignments. This could be attributed to the fact that they were also volunteers and chose areas to contribute that they were already proficient at.

RESULTS

General Management Skills

Qualitative Interviews were conducted of several of the students. Having students involved in the planning and budgeting during the trip had several learning outcomes. Students reported that they built a significant level of confidence in travel negotiation, budgeting and conducting overall business in another country. They also felt that they could easily and confidently go back again for another longer-term experience like a semester abroad or an internship. Several from the trip reported wanting to work in Italy and having a high level of confidence to do so. Students also reported that in spite of the initial anxiety of dealing with large amounts of money for a large group, the responsibility made the program a better learning experience in contrast to the Professor having planned everything out. For one student, the seriousness of the cash assignment was that his decisions could affect the entire group positively or negatively. It had seemed overwhelming. In Team Rome, one student felt that it was a learning curve spending amounts of money that they were not used to, in short periods of time. Most students felt that by taking on responsibility in the overall operations of managing a study abroad, they improved leadership skills along with the ability to respond to unexpected circumstances in unfamiliar settings. The group needed to acquire maximal productivity in the shortest time possible. An overwhelming number of students felt that they were able to develop these critical time management and decision-making skills by being put under diminutive periods of time and working through stressful situations. Working amongst other team members students felt like they improved overall communication, collaboration, teamwork and delegation skills amongst team members by working through differences and personal opinions in various settings. Overall, students reported that this method helped in improving general management skills.

Skills specific to Italy

Having to work with restaurant owners in every city, each group felt that they developed negotiation and bargaining skills that are so unique to the Italian experience. Additionally, students felt that they had a better sense of getting around Italy because individual teams had successfully negotiated with cab drivers, vendors and various forms of transportation companies. Some groups felt that as a result of developing familiarity and relationship building, they were able to get a better price for services offered. All groups felt that they would be much more comfortable coming back to Italy and spending time alone. There was an exponential increase in overall confidence, with each city that the group progressed to. In spite of the language barrier, with just two students that spoke Spanish, everyone felt that they were in a much better position to do business in Italy. Overall, because of the responsibility placed upon them, students felt that they had developed effective ways of traveling abroad that they could replicate in any new cultural setting. Additionally, all students gained a tangible experience of surviving and doing business in Italy.

Lessons learned

Although generally the learning experiences resulted in positive outcomes for all students, there were some situations that could have been avoided. All groups stayed within budget and managed money well. However, the receipts had also been the responsibility of each group for their city. One student, who had kept all the receipts for Rome in his wallet, lost his wallet in the Tyrrhenian sea in Calabria, when out for a swim. The total value of the receipts was 1100 Euros. This could generally be a huge problem for reimbursement for the Professor who had advanced a large sum from the University. However, the student was able to redo all the receipts in collaboration with his team, because of a spreadsheet he had maintained. He signed off on lost-receipt forms for University records, that resulted in no reimbursement issues. The group and instructor learned that it was important for every team to keep and reconcile all receipts at the end of the day and keep them in a safe and secure location. Another improvement would be to take photographs of each receipt every single day.

Synthesis

After the trip, students were expected to spend two weeks reflecting on the trip and writing a 15 pages paper. The synthesis also included leading questions on what they learned as differences between the US and Italy, and what they appreciate in their own surroundings as students having returned to the US. This meant a translation of their experiential learning to their own environments (Mclaughlin, 2006) and in developing intrapersonal growth and self-awareness. This study abroad, that allowed students to be more involved than a regular study abroad experience and take responsibility for planning, teamwork, negotiation and budgeting, allowed the development of multiple cross disciplinary skills in an international environment and helped develop confidence and cross-cultural skills.

Additional Outcomes

Two of the students who pursued an internship in the US following the study abroad, were hired by a local company with ties to Italy. Following a period in the US company, they were then sent to the Italy plant for short training period as an International internship. (It was one of the companies the group had visited during the trip). After the internship period was over, one of the students was offered a full-time position in the company.

Limitations

This study was limited to documenting and interviewing students during one study abroad trip and through qualitative interviews. Future work could expand this same model over multiple years, and more quantitative data to document trends and outliers in student perceptions on this study. Additionally, the model has progressed over the years, with specific objectives like leadership and teamwork being built into the syllabus. Measuring these skills specifically and quantitatively, would constitute future work.

CONCLUSION

Advocates of experiential education often argue that learning by doing is more effective than classroom learning according to Steinberg (2002). This model of study abroad describes a method that gave the students a key understanding on tangible ways to adapt and survive in a foreign country, through different business and leadership practices. The skills developed ranged from decision making, delegation, collaboration and teamwork, and working under pressure and under time constraints. Additional skills developed include budgeting, critical thinking, and learning how to implement effective ways to optimize the use of resources like cash. Leadership skills and confidence levels improved in each student as the course progressed. Students felt a sense of accomplishment in meeting the budget constraints and satisfaction from peer observation and planning. As opposed to a fully instructor-led course, this model helped students appreciate the work involved in managing large sums of money and decisions that affect large groups. The model also increased the level of awareness and confidence that students gained. IES Abroad Roadmap (2011) encourages emphasis on students' acquiring adaptive skills to facilitate their immersion in their host country that supports them in further study or work abroad. This model helped develop the confidence needed to travel abroad again, with several students making plans to travel to Italy again. The reflections assignment during and after the course, helped with documentation of enhancing the experiential learning process. Requiring a photobook at the end of the course helped document the most memorable experiences.

A model that allows students, particularly in a business course, to be involved in learning leadership skills through leading a group abroad, to develop accounting skills through budgeting and maintaining receipts, develop negotiation and intercultural skills in a cash economy through working with taxi drivers and restaurant owners and teamwork skills in groups particularly outside comfort zones, can go a long way in experiential learning outcomes and developing interpersonal growth and adaptive skills. This model for a business study abroad, could be one that other schools could consider to significantly enhance the learning during a study abroad course, in comparison to a traditional instructor-led study abroad experience.

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Profiling the Successes and Failures of Prominent Leaders: A Primer for Developing a Growth Mindset and Enacting Job Crafting

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ABSTRACT

I developed an innovative course requirement assigning undergraduate students at a public civilian university in the Mountain West to profile the successes and failures of prominent leaders as part of an individual student presentation. The purpose of this assignment was to help students understand how successful leaders have overcome hardship, persisted amid adversity, and bounced back from profound struggles. This assignment calls on students to conduct in-depth research and critical analysis of leader behaviors and assesses the impact of the leaders profile on the students. Student qualitative responses revealed that this assignment influenced many participating students to embrace a growth mindset and practice job crafting.

Keywords: Leadership, Growth Mindset, Job Crafting

INTRODUCTION

In this article, I explain how and why I have developed the leader profile into an elaborate, challenging, and high-impact course requirement for an upper-division organizational behavior course at a public civilian university in the Mountain West. I explain the development and implementation of this course requirement and demonstrate that students report increases in a growth mindset and job crafting.

USE OF THE LEADER PROFILE IN THE CLASSROOM

The leader profile is an oral presentation in an upper-division organizational behavior course where students introduce a prominent leader, identify successes and failures of the leader, draw on course concepts and empirical data to explain the success and failures, and offer key takeaways and lessons learned from the actions of this leader. The oral presentation is assessed using the following criteria: (1) Preparation—being ready, organized, and professional, (2) Communication—communicating clearly, creatively, and enthusiastically, (3) Scholarship—accurately describing the leader's relevant strengths and struggles, (4) Relevance—establishing the practical relevance of the leader profile by demonstrating the impact of the leader's behaviors and establishing the value in others embracing/avoiding similar behaviors in the future. This is an elaborate assignment requiring a substantial and meaningful effort over the course of an entire semester. Students explore a list of dozens of pre-approved leaders and present their proposed leader and planned approach with the instructor. They are asked to demonstrate how they will analyze the impact of the leader's behaviors and connect such behaviors to relevant course concepts. If the proposed leader is not on the pre-approved list, the instructor reviews the proposed leader with the student to ensure the student has selected an appropriate leader to profile and has a clear understanding of the leader's likely impact on others. Below is a sampling of leaders whom the students have been profiled in class: Abraham Lincoln, Anne Frank, Attila the Hun, Barack Obama, Catherine the Great, Clara Barton, Cleopatra, Douglas MacArthur, Eleanor Roosevelt, Elizabeth I, Eva Peron, Franklin D. Roosevelt, George Washington, Harriet Tubman, Helen Keller, Henry Ford, Joan of Arc, John F. Kennedy, Margaret Thatcher, Martin Luther King Jr., Mother Teresa, Nelson Mandela, Oliver Cromwell, Queen Victoria, Ronald Reagan, Rosa Parks, Sacagawea, Socrates, Susan B. Anthony, Theodore Roosevelt, Thomas Jefferson, Walt Disney, and Winston Churchill. In addition, the students complete three different journal entries throughout the course of the semester wherein they analyze and reflect on the impact the assignment is having on them in terms of how they feel about the leader behaviors, how such behaviors influence their personal perspective, and what they plan to change in their own perspective and behavior going forward.

IMPACT OF THE LEADER PROFILE ON STUDENTS

In order to assess the effects of the leader profile, I collected qualitative data from undergraduate students (n=49) following completion of the leader profile assignment. Qualitative data provide the best opportunity to understand the depth of impact of the leader profile experience on students' growth mindset and job crafting such that qualitative data are especially valuable in uncovering and fostering richness of data from the participant (Cavana, Delahaye, & Sekaran, 2000; Gaya, 2016; Lee, 1999) and often require a smaller sample size than quantitative data.

My focus was to collect enough data to sufficiently understand the emergent themes and attain saturation such that additional participants does not reveal new themes or distinct information. In seeking saturation, I started with a sample size of 37 and then augmented this sample by 12. As anticipated, the additional sample of 12 showed consistency from one data collection to the next and demonstrated strong evidence of qualitative data saturation and consistency across. My sample size of 49 is also on the upper end of recommended sample sizes among qualitative studies, with recommendations ranging from 20 to 50 participants (Creswell, 1998; Morse, 1994). The student participants were enrolled in an organizational behavior class in a public civilian university in the Mountain West. 67% of the participants were male and 72% were Caucasian, the average age was 24, and had an average of four years of work experience. Because this course is part of the core curriculum within the leadership minor and is broadly available to students across campus, students had diverse work and academic experiences. Two researchers independently assessed and categorized student descriptions. Then, they collaborated and generated a consensus regarding the theme of the student description. Based on qualitative data analysis, I found that the leader profile experience positively influenced the student's (1) growth mindset and (2) job crafting.

Growth Mindset

Mindset theory examines the extent to which individuals view their future situations as changeable (e.g., incremental theories) or as pre-determined (e.g., entity theories) (Dweck, 2008). Growth mindset refers to the belief that one can improve based on their own actions such that they are hopeful for future growth and shape their efforts to attain desired outcomes (Dweck & Leggett, 1988). The growth mindset reflects an underlying belief that achievement is not fixed, but can be enhanced based on effort. Growth mindset increases the level of effort individuals exert and the manner in which they engage their work—they demonstrate higher levels of self-regulation amid failure (Dweck & Leggett, 1988). A growth mindset is associated with increased motivation, learning, achievement, and a focus on learning rather than merely meeting performance criteria (Dweck, 2008). Those with a growth mindset tend to seek critical feedback and view such feedback as vital to their future success—they respond well to such feedback and are often energized by the notion of 'not yet' (getting better but not there yet) (Dweck, 2008). Growth mindset is important because the way an individual frames a situation drives subsequent appraisals, perceptions, and actions—such that those with a growth mindset view setbacks as opportunities to grow and adapt. Those with a growth mindset tend to be more resilient and more likely to seek autonomy, mastery, and purpose in their activities (Yeager & Dweck, 2012). Those with a fixed mindset, however, tend to become devastated by criticism, give up in the face of adversity, and seek contexts in which success will come more easily.

Qualitative data revealed that as students completed their leader profile (and became familiar with how leaders bounced back from failure) they began to think about how they might develop a growth mindset of their own—they began to see opportunities to learn and grow from past struggles and see their future outcomes as being a product of their efforts. For example, with regard to growth mindset, students noted:

> He had 30 years of failures, but also had many successes along the way. He lost jobs, had money trouble, and even got pretty depressed. He also lost several political races. He was miserable and felt sorry for himself, but he just kept going and he kept running for office...He had more than his fair share of failures, but he also did a lot of good things even during those years. He grew up quickly and became wise quickly…I learned that you have to just keep going and keep trying. Failure is part of the process of getting wiser…You have to learn from your failures, like Lincoln. He learned to study harder, work harder, and read more. He started to reflect more. He learned to be less passive and more assertive, but he also maintained a gift to empathize with people…I don't feel so alone when I struggle now. I have felt depressed and thought I wouldn't make it through school. I have wanted to be more direct when talking to people and have wondered if my empathy for others was a weakness…His life gives me some hope to overcome feeling like a failure with hard work and strategies…I am already studying harder and being more direct…I can turn my empathy into a positive. What I do today makes a difference in my tomorrow. (*Leader profile on Abraham Lincoln*)

> Walt Disney didn't give up even after his business failed and people told him to just quit or when they walked all over him. He had to start over twice…When things didn't work out, he decided to just stop focusing so much on how much money he was making and focus more on what inspired him and what his goals were. He focused on doing his best in creating something special. He really pushed himself and did not let his failures define him…He had a lot of ups and downs, so this, sort of, helped me see that my ups and downs are not so unusual…He was told he would never amount to anything, but he kept creating and didn't just give up, you know…Sure, he had some bad ideas, but he also had some really good ideas. He became more and more determined and felt more and more inspired. If you really want something, you just have to go get it because some people might discourage you and criticize you…He struggled creating, but

> became the best creator. He struggled feeling like he fit it, but he became the leader of his family of employees…You know, I struggle finishing school. I am tired of it, but I can do things every day to help me finish. That is an important goal to me…I don't create things, but I have decided I am going to be a finisher. I will finish school and I will finish things in my job. Sometimes it is just a matter of writing the first page or taking that first step to give you the confidence to keep going…You can't hide if you want to be a leader. You have to put yourself out there even if it is not always easy, even if you are not feeling confident at the time. Things will get better if you put in the work. Anything is possible. (*Leader profile on Walt Disney*)
>
> He suffered from asthma and was a sickly child, but became healthy by getting out in nature and embracing an active lifestyle…He experienced a lot of loss in his life. His father passed away before he was even 20 and his mother and wife died within a few days of each other. He was devastated and had a really heavy heart. He did not know how he would go on, but he threw himself into public service…He had a special relationship with his family and always felt incomplete without them, but he learned how to keep going when he really felt a lot of pain…I have experienced a lot of pain in my life too and have learned how to throw yourself into something meaningful and to serve others when you hurt. It is your choice to do that and you can do great things when you are motivated to be better…The last time Roosevelt ran for president, he was defeated but he is still known for being one of our best presidents. Failure does not always stay with you. (*Leader profile on Theodore Roosevelt*)
>
> Failure is temporary if you keep fighting and keep working…Harriet Tubman kept fighting for what she believed in even though this was a big risk to her life. She was hero to so many even as she risked imprisonment or death. The high stakes of what she was doing was a great motivator to her…She never lost her focus, she never lost her courage, and she never lost a passenger. She helped others believe anything is possible and helped them understand that they had someone who believed in them and would help them…I can't do what she did because our times are different, but I can work harder than I have ever worked to help people who are fearful feel safe and I can help people who feel forgotten know that they matter. I can make a huge difference and it all starts with what I do today. (*Leader profile on Harriet Tubman*)
>
> When she died, the New York Times wrote that she was hard-driving and hardheaded. This is true. She was decisive and confident…She lost her first two campaigns for office and was unfairly labeled 'Thatcher the Milk Snatcher', but she broke the 'thick' glass ceiling in Britain…She was strong and stern in public, but warm and kind in private. She had to be. I have to be too…It is easier to be a female leader now because of Margaret Thatcher, but she showed the way...I learned that when you fall, you bet back up and keep fighting. When you get an unfair label placed on you, keep working and keep putting yourself out there. (*Leader profile on Margaret Thatcher*)

As noted above, students began to develop a growth mindset as they acted on what they were learning with their leader profile. Students wrote about learning to overcome failure by continuing to persist, learning to finish strong, turning a weakness into a positive through hard work, accepting that they might have some bad ideas but also many good ideas, and learning to do things they had not done previously. Students also focused on believing anything is possible if you act to make things happen, keeping going in the face of pain and struggle, understanding failure is temporary, focusing on your actions today, and getting back up to keep fighting.

Job Crafting

Job crafting is defined as the "physical and cognitive changes individuals make in the task or relational boundaries of their work." (Wrzesniewski & Dutton, 2001, p. 179). Individuals can craft their jobs in three ways: task boundaries (shaping the tasks they do and how they do them), relational boundaries (shaping the manner in which they interact with others), and cognitive boundaries (shaping the way they think about their work). Job crafting theory (Wrzesniewski & Dutton, 2001), with a theoretical foundation in social constructionism (Gergen, 1994), is a form of anticipatory coping (Angelo & Chambel, 2014). Individuals are motivated to job craft based a need for control, self-image, and connection (Wrzesniewski & Dutton, 2001). Job crafting leads to redefined jobs and refined work identities (Wrzesniewski & Dutton, 2001), engagement (Demerouti, Bakker & Halbesleben, 2015), well-being (Tims, Bakker & Derks, 2013) and performance (Leana, Appelbaum & Shevchuk, 2009).

Qualitative data reveal that as students complete their leader profile (and become familiar with how leaders crafted their own jobs) they begin to think about ways to craft their own jobs—they begin to see and take opportunities to modify the manner in which they perform their work. With regard to crafting task boundaries, students noted:

> She was called the "angel of the battlefield" because she did things with great compassion and she did things differently and better. She went to the battlefield, she cooked, and she cared for the wounded. She taught me to think creatively and focus on the people…I learned a lot from her vision to not only care for people but to create an organization to care for them in the future…We all have our own battlefields where we can change the way we help people…My battlefield right now is finding a way to get back to work in the middle of this pandemic…How do I do that safely?...I have found a way to do things from home that I never imagined doing from home before…I don't know, I am now doing a lot of things I never thought I would do to keep serving our customers, but it's working, it's really working right now. (*Leader profile on Clara Barton*)
>
> Rosa Parks did a simple act that changed the future. When others gave up their seats on the bus because of the pressure of complying, Rosa Parks did not. One simple act did a lot for our country. She faced a lot of angry people, but she planted seeds for more equality in our country…There are simple things I am now doing to stand up to my bully boss. It takes courage to stand up to him, but Rosa Parks showed the example of courage in much more difficult situation…One way I am doing it is by getting HR involved. He is breaking rules, so HR can protect me…I have found a way to report someone else. (*Leader profile on Rosa Parks*)

With regard to crafting task boundaries, students noted:

> FDR connected with Americans in ways that no president has before and at a time of great panic and human suffering. He calmed fears and encouraged them to be hopeful through his fireside chats…He even wrote a lot of his own speeches for these chats and the people loved him for being a voice of calm during several crises. He couldn't really walk, but he connected with people…We are in our own crisis right now. I learned from FDR that feeling connected to others is important during difficult times…So, I am working on creating more trust and better connections by reaching out to my team…I am making a point to be more available for my team right now…Crisis moments give you many opportunities to show up for your team, so I am asking how they are holding up. I am seeing what they need to feel better. (*Leader profile on Franklin Roosevelt*)
>
> He bonded with people he spoke to. Many around him were doing violent protesting, but not him…He understood how emotion is powerful to inspire others to stand up for what is right. His ideas were inclusive and so many loved him because it brought out their best…He loved people and really saw their power for good…I am learning that people really need someone to believe in them…I have a gifted friend at work, he is really brilliant, but he is mostly mean and rude. He is really smart, but doesn't know how to talk with people or be nice. He is nice to me, but really not many other people. He doesn't really have any self-confidence when it comes to talking to others, so I have started talking to him about emotional intelligence and what I am learning in class, not in a threatening way, just saying hey this is what I am learning, it's pretty good. (*Leader profile on Martin Luther King Jr*.)

With regard to crafting cognitive boundaries, students noted:

> Eleanor faced a lot of hate and a lot of opposition, but she choose not to listen to it. She shut out the haters and focused on growing, helping her country, and being true to her own values. She showed great control over her mind and emotions and shut out doubts and fears that might have demotivated her…In my own life, I feel that some people are against me, but I can choose not to let them have a negative influence on me. I am going to follow her example and choose not listen to the hate, and she had a lot of hate thrown at her. I am choosing to be like Eleanor. (*Leader profile on Eleanor Roosevelt*)
>
> She wrote to escape her fear of being discovered. She found comfort writing about her struggles and worries…Writing was a tool for Anne, it was a valuable tool for her…I can use writing as a tool too. I get anxious and worried. I don't have her worries, but I have real worries. Writing is helping me stop all my worrying. (*Leader profile on Anne Frank*)

As noted above, students began to engage in job crafting as they acted on what they were learning with their leader profile. With regard to crafting task boundaries, students wrote about changing the way they worked during the pandemic, doing new activities they had not done before, standing up to an abusive supervisor, and finding a way to change their reporting structure at work. With regard to crafting relational boundaries, students wrote about creating more trust and better connections with others, asking about the well-being of others, and teaching a co-worker about emotional intelligence to help him learn to connect with others. With regard to crafting cognitive boundaries, students wrote about choosing not to let others impact their day in a negative way, choosing not to listen to the hostility projected toward them, and choosing to use writing as a tool calm their mind and quiet their anxiety.

CONCLUSION

The purpose of this research was to determine the impact of student's profiling prominent leaders. We discovered that profiling leaders, reflecting on the leader behaviors, and actively seeking to change behaviors as a result of the lessons learned enable a growth mindset and job crafting. As students seek to apply leadership principals they are learning, contemplation and critical analysis have proven valuable mechanisms in fostering positive outcomes (Thompson, Moss, Simkins, & Woodruff, 2019). Going forward, I recommend quantitative research on student leader profile experiences as a means to confirm and extend these qualitative findings. I also recommend experimenting with a follow-on leader profile graded requirement for students to assess the longevity of the primed growth mindset and job crafting. I also recommend further discovery into how student leader profiles benefit the instructor ability to teach effective leadership concepts in future classes—and examine how teaching about a growth mindset and job crafting in such setting influence instructor growth mindset and job crafting.

These qualitative data offer consistent, compelling, and rich narratives across study participants. With this evidence, I have demonstrated that the leader profile experience enables growth mindset and job crafting—two relevant and meaningful outcomes to organizations, groups, and individuals. Other educators might consider using similar practices and assignments to foster opportunities for students to profile prominent leaders while also considering in-depth self-evaluations of effective leader behaviors over time. I believe similar success could be achieved in other courses and academic settings as well as private-sector and government organizations, especially if integrated into the broader curriculum of the organization or institution (Liesz & Porter, 2015).

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The Effects of Goal Clarity and Goal Commitment on Performance in a Business Strategy Game

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ABSTRACT

When using business simulations in the classroom, a lack of student engagement and strategic thinking by all group members can negatively affect student learning. In this study we implement an exercise (Mayer, Dale, Fox, 2014) which was developed around McCheney, Covey & Huling's (2012) 4 Disciplines of Execution to increase goal clarity and goal commitment in a business simulation. The impact of goal clarity and goal commitment on various assurance of learning performance outcomes in student teams charged with running a simulated company are investigated. Specifically, the performance outcomes considered include an individual's leadership skills, collaborative and teamwork skills, analytical skills, financial management skills, and strategic analysis and planning skills. This study supports goal theory research that suggests having clear goals that individuals or groups are committed to provides the motivation to increase learning and performance.

Keywords: Goal Clarity, Goal Commitment, Business Simulation, Performance

INTRODUCTION

In higher education, business simulations are often used in undergraduate and graduate management programs because they mirror a real-world business learning environment. However, when using business simulations, a lack of student engagement and strategic thinking by all group members can negatively affect student learning. According to Cadotte (1995), strategic thinking requires students' understanding and coordinating the tactical options they have available to them in order to achieve a desirable outcome, while engagement often correlates with increased student learning (Pandey & Nagesh, 2013; Randel, Morris, Wetzel, & Whitehill, 1992; Sanders, Boss, Boss & McConkie, 2011). But why does student engagement fail in business simulations? A primary reason is that students don't know or understand their team's top goals and priorities, and they don't know how to translate goals into actions and productive behaviors. Consequently, they aren't committed to or engaged in learning if expectations are not clear. This is not surprising considering that less than half or about 44% of employees know and understand their organization's goals, and they spend less than half of their time on activities related to the organizations top priorities (Knight, Durham & Locke, 2001; Porter & Latham 2013).

Critical to the motivational aspect of goal setting are goal clarity and goal commitment (Locke & Latham, 1990). That is, do students know and understand the few critical goals of the learning simulation? Do they realize that these "wildly important" goals must take precedence over the "merely important" ones? Equally important, are students energized and involved in setting them, and thus committed to achieving them? In this study, an exercise developed by Mayer, Dale, and Fox (2014) which was adapted around McCheney, Covey & Huling's (2012) 4 Disciplines of Execution to increase goal clarity and goal commitment is implemented. The effects of goal clarity and goal commitment on various assurance of learning outcomes in student teams charged with running a simulated company are investigated. Specifically, the performance outcomes examined include leadership skills, collaborative and teamwork skills, analytical skills, financial management skills, and strategic analysis and planning skills. The findings will be instrumental in guiding student teams towards effective strategic thinking and engagement within a business simulation which, in turn, may lead to the development of team leadership skills that are transferable to the workplace. Although, this framework is proposed using the Business Strategy Game (Thompson, Stappenbeck, Reidenbach & Thrasher, 2013), it could also be applied to other business simulations.

GOAL CLARITY AND GOAL COMMITMENT

Goal setting theory suggests that specific, challenging goals that individuals or groups are committed to provide the motivation to increase learning and performance. This notion is well-documented in the organizational literature (e.g., Locke & Latham, 1990; Locke, Latham & Erez, 1988). In fact, more than 1,000 studies have provided

empirical support for goals acting as a regulatory mechanism for individuals or groups to monitor and adjust their behavior (e.g., see Locke & Lathan 1990; Mitchell & Daniels, 2003 for reviews).

Locke et al. (1988) suggest two critical characteristics for goal setting to be motivational are the degree to which goals are clear, measurable, a priority, and completely understood (goal clarity), as well as the determination one has to attain a goal (goal commitment). In student team planning sessions, a lack of goal clarity may lead to a failure to engage in appropriate decision-making and problem solving activities. Similarly, goal clarity impacts the creativity of providing a clear problem definition. Without a clear goal, members don't know what is expected or what specific actions to take to move towards goal attainment (e.g., Johnston, Reed, Lawrence, Onken, 2007). One example in an educational setting is a study of MBA students who were at the beginning of their program. Those students who set clear learning goals early in their program had higher grade point averages and were more satisfied with their experiences than those that were told to do your best at the end of the year (Latham & Brown, 2006).

Another core component of goal setting is goal commitment, and (Locke, 1968) argues the central importance of goal commitment to performance. Goal commitment refers to one's determination to achieve a goal (Locke & Latham, 1990). In both individual and team settings it includes factors such as exerting effort towards goal attainment, attachment to the goal, persistence to pursue and not give up until the goal is achieved (Hollenbeck & Klein, 1987). Without goal clarity and commitment, teams are likely to become distracted and lose focus. They may waste time due to a lack of understanding of what is a priority and what is not because they are not focusing on the same goals. Recently, Seijts & Lathan (2011) investigated the direct effects of goal commitment in a business simulation and found a moderate ($r = .47$) correlation between commitment to a learning goal and performance as measured by the market share each participant had at the end of the final decision round. Moreover, they found that commitment to a learning goal is crucial to obtaining the knowledge necessary to be able to perform a complex task such as running a simulated business game.

PRINCIPLES AND DISCIPLINES OF EXECUTION

Covey (2004) stressed the importance for companies to communicate, set clear expectations, assume responsibility, and assemble a disciplined team of people that are focused on a few specific core objectives. Kotter (2008) agrees with Covey in his classic studies of highly effective business leaders. In his observations of successful general managers, he found they have two things in common. They focus on a set of clear objectives that are measurable, and they keep their people moving toward them consistently.

Covey (2004) developed an instrument called the Execution Quotient Survey (xQ) that measures the alignment of work teams to key goals, and McCheney, Covey & Huling (2012) developed a process called *The 4 Disciplines of Execution* to guide people toward meeting their goals. This process is the foundation for giving business students the skills they need to execute a strategy and help to prioritize their time. Mayer, Dale, & Fox (2014) suggest if students apply the 4 Disciplines of Execution in their business simulation companies, teams will achieve remarkable results on the simulation by motivating the desire to win. In essence, the 4 Disciplines are as follows: Discipline 1 – students can achieve extraordinary results when they are clear about what matters most. At the beginning of the simulation students set a Widely Important Goal (WIG) that goes against their basic instincts and instead encourages them to focus less on themselves and more on the team. Discipline 2 – the discipline of leverage. Leverage involves having students focus on lead measures rather than overall results. That is, set very specific lead measures around WIGS. For example, if gross margin is a WIG, students can focus on trying to lower reject rates, increase productivity or shipping costs. Discipline 3 – the discipline of engagement. To improve engagement and passion in the Business Strategy Game, students can design a scoreboard that visually tracks the team's progress on lead measures and WIGS. An effective execution scoreboard motivates the team to win the game of achieving their most critical goals. Discipline 4 – the discipline of accountability. Each member of the student team keeps each other accountable for producing the work that is required to have success around their scoreboard by having a WIG session each week to discuss progress on the lead measures they performed. When the 4 Disciplines of Execution are applied to students using a business simulation, goal clarity and goal commitment will increase (Mayer et al., 2014). Thus, the following hypotheses are proposed:

H1: Students who perceive having higher levels of goal clarity about team goals will score higher on the simulation Assurance of Learning performance objectives.

H2: Students who perceive having higher levels of commitment to team goals will score higher on the simulation Assurance of Learning performance objectives.

METHODS

Sample and Procedures

The sample for this study consisted of 167 undergraduate business students enrolled in Business Policy and Strategy classes over three semesters. Students are taught the Business Strategy Game (Thompson, Stappenbeck, Reidenbach, & Thrasher, 2013). They are encouraged to read the player's manual and are given two quizzes to gage their comprehension of the manual. Students are introduced to the 4 Disciplines of Execution and given the following three WIGS: Gross Margin, ROE, and Image Rating. Each student of a team must concentrate on at least one lead measure that will help predict and influence the WIGS. For example, productivity, reject rates, material costs would all influence gross margin. Each team develops a scoreboard around their goals and lead measures and has a weekly WIG session where they are responsible for determining progress on goal accomplishment. During the final year of the simulation, students complete the Execution Quotient Survey (xQ) that measures the student's ability to focus on and execute their most important goals.

Below are detailed procedures followed for the simulation work as suggested by Mayer, Dale, Fox (2014) in an earlier work:

1. Assign students to their simulation teams for the Business Strategy Game (Thompson, Stappenbeck, Reidenbach, & Thrasher and Harms (2013a) or full enterprise simulation of your choice. This exercise works best with 3 students per team, but larger groups can be used at the discretion of the instructor.
2. Use one week as a "practice" period for learning the simulation. During the practice period the following may occur:
    - Instructor will discuss the dynamics of the simulation
    - Students will be quizzed on the Player's Guide
    - Teams will play two (2) practice rounds of the simulation
    - Instructor will then reset the game and official play will begin
3. Instructor assigns "Gross Margin" as the first widely important goal (WIG) for each group to focus on for the period of years 11 – 14 (the Business Strategy Game begins at year 11).
    - Students should focus on the thought that if they don't do this right, then nothing else matters.
    - Team completes Part 1 of the Work Compass form by setting the WIG parameters for Gross Margin (see Work Compass form):
        - Establish X to Y using clearly measurable results
        - Indicate by when (when will goal be accomplished)?
        - Students work on this portion of the Work Compass form as a team, but each student fills out their own copy of the Work Compass form
        - Assign each group member one of the following lead measures to investigate: Worker productivity, reject rates, and shipping costs (see Table 1)
    - Individually: During the week, each student on the team individually fills out Part 2 of the Work Compass form for the lead measure they were assigned:
        - Students should look at help screens to identify "how to" improve WIG results for their assigned lead measure:
            - How to increase productivity
            - How to lower reject costs
            - How to lower overall shipping costs
        - Each student will indicate tasks to accomplish in order to improve performance on the assigned lead measure and move the scoreboard.
4. Team Weekly WIG session
    - Each student reports on how they will help improve performance on the WIG through the research they've gathered on their assigned lead measure.
    - During the first WIG session, teams develop a scoreboard to track weekly progress on each lead measure contained in the WIG (A spreadsheet or graph is commonly used as the scoreboard).
    - Each week, teams should spend about 15 minutes updating and reviewing the scoreboard information before making the next round of decisions.

- Teams complete Part 3 of the Work Compass by identifying action items based on the weekly WIG session. In this section of the Work Compass, students should specifically state what decisions they are going to make based on information shared at the WIG session. In Part 3, teams should clarify any future commitments needed from the group during the week as well.
- Teams submit weekly simulation decisions for processing.

5. Instructor collects Work Compass forms for "Gross Margin" and scoreboards from all groups at the end of Week 14.
6. The Instructor assigns "Return on Equity" as the second widely important goal (WIG) for each group to focus on for the period of years 14 – 18. Repeat steps 3 through 5 for this WIG assigning each group member one of the following lead measures to investigate: Net Margin, Inventory Turnover, and Capital Structure (see Table 1).
7. Instructor collects Work Compass forms for "Return on Equity" and scoreboards from all groups at the end of Week 18.
8. The Instructor assigns "Image Rating" as the third and final widely important goal (WIG) for each group to focus on for the period of years 18 - 20. Repeat steps 3 through 5 for this WIG assigning each group member one of the following lead measures to investigate: Corporate Social Responsibility, Market Share, and Quality Rating (see Table 1).
9. Instructor collects Work Compass forms for "Image Rating" and scoreboards from all groups at the end of Week 20.

Form 1 – Modified Work Compass

Part 1 – Team Activity: WIG
WIG:
X to Y by When:

Part 2 – Individual Activity: THIS WEEK'S FOCUS	
What must I must accomplish this week to move the scoreboard?	
Lead Measure	☐ To improve the WIG we will (increase or decrease)….
Task	☐
Task	☐
Task	☐

Part 3 – Team Activity: TEAM COMMITMENTS
Record the action items developed during the WIG session

Measures

The Learning Assurance Report (LAR) that is part of the Business Strategy Game simulation and the Execution Quotient Survey (xQ) were used as measures in this study. Each measure is discussed below.

Learning Assurance Report (LAR)

The Learning Assurance Report was used to measure the 5 criteria that indicate performance level. The 5 criteria are leadership skills, teamwork, analytical skills, financial management, and strategic analysis and planning. According to (Thompson, Stappenbeck, Reidenbach, & Thrasher, 2013), the Learning Assurance Report (LAR) within the Business Strategy Game provides solid empirical data regarding business skills and decision-making capabilities. The LAR is based on percentile rankings for each participant versus the total population of undergraduate students worldwide who have participated in The Business Strategy Game within the last 12 months. The most recent population includes Undergraduate Students = 43,662, Companies = 15,805, Schools = 388, and Countries = 37.

Leadership Skills: The assessment of the individual's leadership and independent thinking skills is measured in the LAR based on each student's individual performance as viewed by their simulated company co-manager in a post-game peer evaluation. Five items from the 6-point scale were used to measure Leadership Skills, and examples of questions include, "Exercise of leadership within the group" and "Caliber of contribution to decisions and to the company's overall performance." The results from this scale were then converted into a percentile ranking by the authors of the Business Strategy Game as explained above.

Teamwork: The assessment of the individual's collaborative skills, teamwork, and ability to work well with others is measured in the LAR based on each student's individual performance as viewed by their simulated company co-manager in a post-game peer evaluation. Five items from the 6-point scale were used to measure Teamwork, and examples of questions include, "Caliber of preparation for meetings (was familiar with where things stood and latest results)" and "Carried a fair share of the overall workload." The results from this scale were then converted into a percentile ranking by the authors of the Business Strategy Game as explained above.

Analytical Skills: The assessment of the individual's skills in analyzing information, calculating financial ratios, and identifying appealing ways to improve company performance is measured using individual answers to 10 multiple choice questions from Quiz 2 which is part of the Business Strategy Game and included in the LAR. Again, the results from this scale were then converted into a percentile ranking by the authors of the Business Strategy Game.

Financial Management: The assessment of the financial performance of the simulated company is measured by scores for the company's ROE, credit rating, and stock price. This data is based on team performance, so each student within a team would have the same score, but scores are different across groups. The authors convert the scores to percentile rankings that are then provided to the instructor in the LAR.

Strategic Analysis & Planning: The assessment of strategic analysis and planning skills is measured by scores achieved on the 3-Year Strategic Plan exercise in the LAR. These scores are based on a point system where students are rewarded for setting and reaching challenging but achievable goals. The data is based on team performance, so each student within a team would have the same score. The results from this exercise were then converted into a percentile ranking by the authors of the Business Strategy Game.

Execution Quotient Survey (xQ)

Questions from the xQ (Covey, 2004) were used to measure goal clarity and goal commitment. Goal clarity was measured using four questions from the questionnaire. The questions used a 5-point scale, and examples of the questions used to measure goal clarity include, "My team has decided what its most important goals are" and "My team has clearly communicated its most important goals." Goal commitment was measured using six questions from the xQ questionnaire. The questions used a 5-point scale, and examples of the questions used to measure goal commitment include, "My team sets goals that are timely, that is, it's the right time to work on them" and "My team sets goal that are truly achievable."

ANALYSIS

An independent samples *t*-test was used to compare mean scores of those groups above and below the median score on Goal Clarity and Commitment to Team Goals on each of the performance criteria. Farrington and Loeber (2000)

pointed out that there are justifications in using median splits. In this study, the independent variables were categorized because of the highly skewed distribution of team members' scores on goal clarity and goal commitment within their groups. Median splits have been used with both continuous and ordinal variables to turn them into dichotomous variables. In this study, the cases were put into a "low group" which are below the median and a "high" group that are above the median.

DeCoster, Gallucci, & Iselin (2011) concluded that using continuous variables is preferable to categorical data. They believe, however, that researchers should be allowed to use this procedure in some circumstances. Farrington and Loeber (2000) highlighted some of the circumstances that may support turning continuous data into categorical data. They suggest that categorizing variables is one way of handling variables with highly skewed distributions. The authors also suggest that categorizing variables can be beneficial when a variable is not correlated. Furthermore, the authors indicate that categorizing variables improves communication and claim that the costs of categorizing continuous data in terms of power are relatively small. Whether researchers choose to analyze their data continuously or categorically, it is important that the language they use to present their results accurately reflects the way in which the data were analyzed (DeCoster et al., 2011). We cannot say that the higher the students goal clarity and goal commitment the higher the performance scores. Instead, we can surmise with categorical data that students who have high goal clarity and goal commitment have higher performance scores than students with low goal clarity and goal commitment.

RESULTS

Hypothesis one suggests that students who perceive having higher levels of goal clarity about team goals will score higher on the simulation performance objectives. Table 1 contains the results of an independent-samples *t*-test comparing the mean scores of those above and below the median score on goal clarity about team goals. There was a significant difference between the means of the two groups in Analytical Skills ($t(128.59) = 2.050$, $p < .05$), Financial Management ($t(133.99) = 3.172$, $p < .05$), and Strategic Analysis and Planning ($t(137.84) = 3.857$, $p < .05$). The average performance scores for Analytical Skills, Financial Management, and Strategic Planning and Analysis were significantly higher for participants who had higher scores for goal clarity than those participants who had lower goal clarity. There was no significant difference between the two groups for Leadership Skills and Teamwork. Thus, Hypothesis 1 is partially supported.

Hypothesis two suggests that students who perceive having higher levels of commitment to team goals will score higher on the 5 simulation performance criteria. Table 2 contains the results of an independent-samples *t*-test comparing the mean scores of those above and below the median score on commitment to team goals. There was a significant difference between the means of the two groups in Leadership Skills ($t(162.57) = 2.599$, $p < .05$), Teamwork ($t(162.52) = 2.719$, $p < .05$), Financial Management ($t(160.71) = 2.236$, $p < .05$, and Strategic Analysis and Planning ($t(163.91) = 3.474$, $p < .05$. The average performance scores for Leadership Skills, Teamwork, Financial Management, and Strategic Planning and Analysis were significantly higher for participants who had higher commitment than those participant who had lower commitment. There was no significant difference between the two groups for Analytical Skills. Thus, Hypothesis 2 is partially supported.

DISCUSSION

This study supports goal theory research that suggests having clear goals that individuals or groups are committed to provides the motivation to increase learning and performance. Students who had higher levels of goal clarity and goal commitment scored significantly higher on both Financial Management and Strategic Analysis and Planning measures. Additionally, higher levels of goal commitment resulted in higher ratings on leadership skills and teamwork skills. It seems students work better as a team and have more shared leadership in their groups when they are more committed to the goals. When students are committed to the goals, they may be more likely to participate in weekly team meetings where they hold each other accountable for the team goals and for accomplishing their individual work goals. Further, as goal commitment increases, the teams may develop more synergy allowing for increased performance.

When the students clearly understood each of the team goals, they were more likely to assign various work elements that were important in driving the team performance. Students became more energized when keeping score around the team goals. They took ownership in their team goals and then set their individual work goals around the lead measures of each team goal.

This study, like most, had limitations. One potential limitation may be the existence of confounding variables such as the halo effect. Students who achieved higher performance ratings on the simulation may have also given higher grades to teammates in other assessment areas. To control for halo effect, the researchers reminded students that assessments were anonymous, not graded, and that honest assessments were important because the results would be used for research. The researchers observed no clear evidence of bias in the groups during any part of the study.

CONCLUSION

Goal clarity and goal commitment appear to have a positive impact on performance outcomes in student teams charged with running a simulated company. Thus, there is the potential for increased student learning from a business simulation if instructors incorporate assignments into the class such as the one described in this study (Mayer et al., 2014) that are designed to improve goal clarity and goal commitment.

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Table 1: Results of Goal Clarity on Simulation Performance

	Median	N	Mean	Std. Dev.	t	df	Sig. (2-tailed)
LEADERSHIP SKILLS	>= 4.00	101	52.18	31.26	.115	136.34	.909
	< 4.00	63	51.62	29.83			
TEAMWORK	>= 4.00	101	50.89	31.50	.030	136.41	.977
	< 4.00	63	50.75	30.05			
ANALYTICAL SKILLS	>= 4.00	101	63.27	31.22	2.050	128.59	.042*
	< 4.00	63	52.79	32.20			
FINANCIAL MANAGEMENT	>= 4.00	101	38.40	19.12	3.172	133.99	.002*
	< 4.00	63	28.79	18.68			
STRATEGIC ANALYSIS & PLANNING	>= 4.00	101	57.74	24.09	3.857	137.84	.000*
	< 4.00	63	43.37	22.65			

*p<.05

Table 2: Results of Goal Commitment on Simulation Performance

	Median	N	Mean	Std. Dev.	t	df	Sig. (2-tailed)
LEADERSHIP SKILLS	>= 4.30	89	57.81	30.35	2.599	162.57	.010*
	<4.30	78	45.64	30.02			
TEAMWORK	>= 4.30	89	56.81	30.43	2.719	162.52	.007*
	<4.30	78	44.04	30.14			
ANALYTICAL SKILLS	>= 4.30	89	64.16	31.20	1.855	160.43	.065
	<4.30	78	55.00	32.34			
FINANCIAL MANAGEMENT	>= 4.30	89	37.64	18.83	2.236	160.71	.027*
	<4.30	78	31.00	19.41			
STRATEGIC ANALYSIS & PLANNING	>= 4.30	89	57.73	24.46	3.474	163.91	.001*
	<4.30	78	44.90	23.23			

*p<.05

Continuous Improvement in Assurance of Learning through Institutional Assessment Infrastructure Innovation

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ABSTRACT

Changes in the higher education environment coupled with internal campus-wide changes necessitate a better understanding of the current organizational capabilities to effectively address external and internal challenges. A valuable lens on organizational capability and campus readiness to address these challenges is the current state of assessment infrastructure and its capacity to support and enable a culture of evidence. This culture is an integral dimension of institutional commitment to student learning and success, continuous improvement, and deep organizational learning. Based on innovative adoption of some of the leading theoretical frameworks on organization capacity (Waterman, Peters & Phillips, 1980) and current literature on change in higher education (Kezar, 2014), this research employed an in-depth interview methodology, to explore innovative ways to strengthen university assessment infrastructure in support of its mission in student learning and success. The qualitative data were collected through representatives of each academic college in a large western public university. Informed by the interview results, the authors delineate recommendations for infrastructural improvements to strengthen the university's capabilities for supporting and advancing a culture of evidence on student learning. The authors also discussed avenues for future research and practice in conceptualizing, designing, implementing, and enculturating an effective assessment infrastructure in higher education institutions.

Keywords: assessment, assurance of learning, infrastructure, organization change, student learning

INTRODUCTION

Dated from the first national conference on assessment in higher education, held in Columbia, South Carolina, in the fall of 1985, cosponsored by the National Institute of Education (NIE) and the American Association of Higher Education (AAHE), the influence of assessment movement has significantly reached to many if not all of the country's colleges and universities. For about three decades since then, there has been a great deal of discussion about the need for the fundamental change of colleges and universities to meet the future financial and societal pressures on higher education (Guskin and Marcy, 2002).

The principles and practices of assessment/assurance of student learning have been at the forefront of these discussions. Both regional and discipline-based accreditors (such as WSCUC and AACSB) in their institutional accreditation reviews, highly emphasize evidence demonstrating continuous improvement in building organization's capacity in supporting and assuring student learning and aligning elements in an institution's assessment/Assurance of Learning (AoL) systems (e.g. WASC Standard 4: Creating an Organization Committed to Quality Assurance, Institutional Learning, and Improvement; AACSB Standard 8: Curricula Management and Assurance of Learning). Amidst the external pressure of change in higher education and trends in the assurance of student learning, individual institutions also face the internal demands from their internal stakeholder to assure education effectiveness and currency for the future workforce. A recent AACSB report "A New Vision for Business Education" envisions business schools are the "drivers of change", where the narratives of the role of higher education and the roles of business are redefined.

This research project is set at the backdrop of both a fast-changing external and internal environment, at a large public university. This research aims to understand and to describe the current Assessment /Assurance of Learning infrastructure on campus, as well as to recommend institutional-wide strategies and tactics, informed by theories and best practices to strengthen the campus assessment/assurance of learning infrastructure and build a culture of evidence.

LITERATURE REVIEW

Outcome-based assessment movement originated during the early 1980s when several national commissions called for reform of higher education centered on assessment of student learning outcomes. Since then, the evaluation of educational outcomes and quality has become a common focus for higher education institutions seeking regional or discipline-based accreditation or reaffirmation of accreditation status (such as WSCUC and AACSB). In recent years, more and more colleges and universities have gone beyond the compliance mindset in approaching the assessment of student learning. Although the same tension characterized the accountability and improvement purposes of student learning outcome assessment when the assessment movement began in the mid-1980s, an increasing number of institutions are adopting a "continuous improvement" paradigm to guide their mission-driven teaching and learning activities (Ewell, 2009).

Organization Change Framework

The ever-changing environment of higher education has presented several major challenges for all institutions, as they reconsider their roles and directions. According to Kezar's (2014) model of organization change, environmental trends in higher education include the following (p. 5):

1. *Connection of higher education to the global economy*
2. *The greater public investment and sense of accountability*
3. *Increasing numbers of diverse students who engage campus differently*
4. *The corporatized campus environment*
5. *For-profit higher education, competition, and marketization*
6. *New knowledge about how people learn*
7. *Technology*
8. *Internationalization of campus*

Public colleges and universities in the nation face the same changing environment, they stand at a cross-road of charting their path toward the future. For instance, the increased diversity of student body, and the various needs to facilitate successful learning, improve graduation rates, eliminate equity gaps, integrate technology into teaching, learning and advising, and in some cases, re-thinking the traditional lecture mode of teaching. Online and hybrid classes are gaining popularity on campus. And the need to ensure student learning in the new teaching and learning modalities presents itself as one of the challenging topics for faculty assessment committees.

Federal and state governments have continued to call for greater accountability and transparency as a condition of the government's investment by requiring assessment of student learning outcomes (p. 7). At the same time, the state funding has not been adequate to meet the campus' need to continue the growth of its programs and sustainment of its student success initiatives. Values of entrepreneurship, competition, and marketization from for-profit higher education arena have started to make inroads in the face of traditional institutional values. Besides, an increasing number of administrators and non-academic managers now control and dominate university life (Leicht and Fennell, 2008, see p. 11 Kezar, 2014). And at the cognitive and neuroscience front, new theories of learning challenge the long-established pedagogy and teaching theories. For example, Zull (2011) demonstrates that learning of discrete facts, rather than synthesis, is much less successful and that curriculum and pedagogies that emphasize the integration of content and existing schema are critical to student learning (Kezar, 2014, p. 14). A basic premise for a successful change in a rapidly changing higher education environment is thorough and up to date contextualized ("localized") analysis of the institution's existing organizational capabilities to adapt and successfully navigate through the environmental and internal changes.

"Second-order" Change ("Deep Change")

Kezar's (2014) framework of organizational change in higher education includes both the more "visible" changes in the institution's "structural" elements ("first-order change"), and the "invisible" changes that run deep in the "hearts" and "minds" of the faculty, staff, and students of the institution ("second-order change"). According to Kezar, the structural elements might include substantial changes to the curriculum, new pedagogies, changes in student learning and assessment practices, new policies, reallocation of funds, creation of new departments or institutional structures, and new processes or structures for decision-making. First-order changes, which have been studied more than second-order changes, are more commonly pursued in higher education, as they are easier and faster to accomplish since they are leveraging the existing attitudes and assumptions (Kezar, 2014, p. 62). Second-order changes (also referred to as "double-loop learning") are often deep and transformational (Argyris, 1994), and

necessitate challenging the institution's existing assumptions and beliefs to align with the environment (p. 62). These changes include faculty, staff, and students' attitudes or cultural evidence on campus. These can include changes in the way groups or individuals interact with each other, the language used by the campus in referring to itself, the types of conversations that occur among campus constituents, the abandonment of old arguments, or the emergence of new relationships with stakeholders. Kezar (2014) illuminated that the *defining* feature of second-order change is the attitude change of the employees that is simultaneously manifested in the higher education organization's visible structures (p. 63).

Sensemaking and Organization Learning

Often deep and transformational, second-order change inevitably involves sense-making at the individual level and organizational learning at the institutional level. Kezar (2014) specifically delineates the scopes and limitations of sensemaking and organizational learning as they pertain to change in higher education. Sensemaking is about changing mindsets, which in turn alters behaviors, priorities, values, and commitments (Eckel and Kezar, 2003, in Kezar, 2014, p. 64). Kezar insightfully points out that, "second-order change is about people making new sense of things. Making new sense means that individuals explore what change initiatives mean for their roles and responsibilities, their identity within an organization, and their overall perspective of the organization." (p. 64)

Unlike sensemaking, which focuses on the individual level change, the organization learning framework has its focus on the institutional level. While sensemaking and organizational learning overlap in their emphasis on how people's mindset can shift, organizational learning, most often associated with Chris Argyris (1994), follows a more rational and data-oriented approach (p. 65). Organizational learning assumes that once human beings detect errors they want to correct them and undergo change. Therefore, organizations need to create mechanisms so that people can detect errors, which often involves the collection and review of data (p. 65).

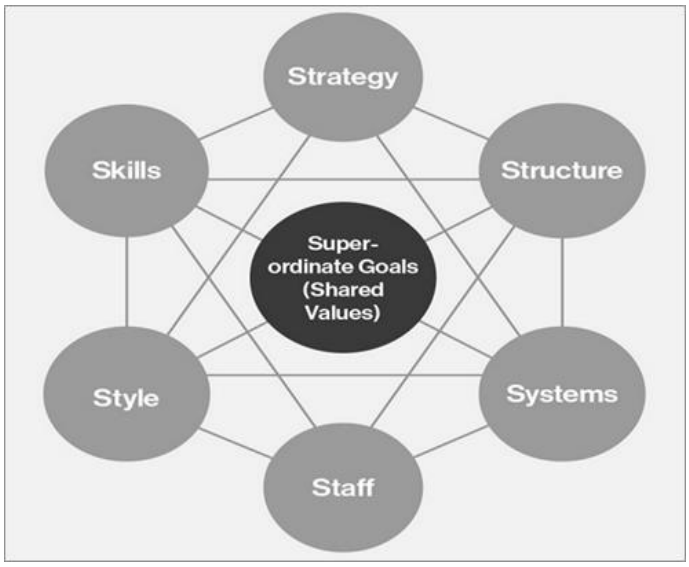
Kezar's model of change in an academic environment provides a system-view of change. It recognizes that complex processes require an understanding of the internal and external conditions that shaped these processes. It paints a broad stroke picture and draws attention to the visible first-order change, and more pointedly to the invisible second-order change that resides in the attitudes and meanings people make out of the visible organizational behavior.

McKinsey's 7s Model

To complement Kezar's organizational change framework, McKinsey's 7s Model offers a concrete and operationalizable tool for the improvement of the organization's infrastructure. McKinsey's 7S model was developed in the 1980s by McKinsey consultants Tom Peters, Robert Waterman, and Julien Philips. Since its introduction, the model has been widely applied by management academics and practitioners in strategic planning. The model demonstrates an emphasis on the roles that human resources ("soft S") play in improving organizational performance, rather than the traditional strategic emphasis on mass production tangibles of capital, facilities, and equipment. The model offers a comprehensive framework on how the 7 elements of the organization: Structure, Strategy, Skills, Staff, Style, Systems, and Shared Values, can be aligned to achieve effectiveness in an organization. The model posits that for an organization to function effectively, all of its structural elements must be aligned. Additionally, a change in one element may have a "domino effect" on the others, thus necessitating organizational re-alignment for effective functioning.

In the McKinsey model, the seven areas of the organization are divided into the "soft" and "hard" areas. Strategy, structure, and systems, are "hard" elements; whereas style, staff, skills, and shared values, are "soft" elements (Figure 1). For example, a strategy is a plan for achieving organizational goals and objectives, while shared values are the norms that guide employee behaviors in the organizational context.

Figure 1: McKinsey's 7S Model



The model can be applied to many situational contexts and is a valuable tool when organizational design and alignment are in question. To date, the most common uses of the framework are in the areas to change management and new strategy implementation.

RESEARCH QUESTIONS AND METHODOLOGY

Guided by the conceptual framework of Kezar's organization change model, the authors adopted the McKinsey's 7S model to higher education context to provide the operational lens for examining the organizational infrastructure for assessment of student learning. The following research questions were proposed to explore for a better understanding of the current state of the infrastructural elements in support of a culture of student learning evidence on a large western public university campus. Assurance of learning supporting graduate programs was focused in this research to offer a manageable sample of the institution's large portfolio of academic programs.

> ***Q1:*** *What data, at the program, and institution level are collected for assessment and evaluation of graduate student learning?*
>
> ***Q2:*** *What strategies and tactics are deployed in data collection, analysis, and dissemination, reflection, closing of the loop, and advancing learning outcomes visibility at the department, college, and university level?*
>
> ***Q3:*** *What people and entities are involved in the current assessment system?*
>
> ***Q4:*** *What technology and information system are used for collecting, analyzing, integrating, and disseminating assessment data at all levels of the institution?*
>
> ***Q5:*** *What training and support are provided to faculty and staff engaged in the assessment of student learning on our campus?*
>
> ***Q6:*** *What strategies and tactics can be implemented in the future to better engage faculty, staff, and administrators in advancing a sustainable culture of evidence for assurance of student learning in the graduate programs?*

Aiming at a deeper understanding of the current sense-making environment and assessment infrastructure on a large western public university, this research employed an in-depth interview method. Institutional Review Board (IRB) approved the study's proposal. Both authors completed the mandatory Collaborative Institutional Training Initiative (CITI) training program for researching human subjects. A sample (n=9) of faculty assessment leads representing 8

academic colleges and about 30 post-baccalaureate programs (including 28 masters programs, 1 Ed.D program and credential programs), provided the evidence for the study through interviews. The academic colleges represented in the study were as follows: Agriculture, Business Administration, Education, Engineering, Environmental Design, Hospitality Management, Letters, Arts, & Social Sciences, and Science.

This sample of respondents included the faculty Director of Assessment and Program Reviews, Director of Graduate Studies, and College Assessment Liaisons and faculty assessment coordinators. All 9 subjects selected for interviews are tenure track faculty, 6 are female, 3 are male; 2 are at the rank of assistant professor, 3 associate professors, and 4 professors. All subjects gave informed consent before the interviews. A copy of the consent form was given to each of the subjects at the end of the interview. Each of the interviews lasted for about an hour. Six open-ended research questions were asked during the interviews. All interviews were transcribed into text files. Two researchers independently conducted a thematic analysis of all content in the transcriptions. The emerging themes were compared after initial coding. Differences were reconciled through reviews and discussions.

RESULTS SUMMARY

In this study, we set to explore the current state of graduate assessment infrastructure through in-depth interviews with faculty assessment leaders from across academic colleges and through web scans of graduate programs' websites). In this section of the report, we will summarize key findings and reflect on them through the lenses of literature frameworks and campus-wide initiatives on assessment during the past year. In the next section, we will recommend strategies to strengthen assessment infrastructure to promote a culture of student learning evidence in alignment with the university's mission, vision, and core values.

The analysis of findings reveals several challenges and areas for improvement as related to each of the infrastructural elements of McKinsey's 7S model. These elements include Strategy (data and tactics), Structure (organizational entities), Systems (processes and procedures; information systems), Skills (abilities and competencies of employees), Staff (employees), Style (leadership, communication, resource allocation, planning), and Shared Values (norms, standards, beliefs).

The detailed insights from the findings for each research question are summarized below. The summary is followed by reflections through the lenses of the literature and current assessment-related initiatives on Cal Poly Pomona campus.

The analysis of responses for research question # 1 revealed the following challenges and areas for improvement:

1) The visibility of student learning outcomes for graduate programs across the university needs to improve. While assessment information is commonly shared with the internal audience through Blackboard, it is not accessible for external audiences. *(data)*
2) No data on graduate learning outcomes are collected and analyzed across programs at the institutional level. *(data)*
3) There is variability across programs in practices for developing program learning outcomes and the extent of data collection. *(strategy)*
4) Faculty lack understanding of fundamental assessment principles and terminology. While there is a strong interest in learning about assessment basics, the respondents believe there are not enough opportunities available to meet the demand. *(skills)*
5) Faculty lack institutional support and guidance on data collection, analysis, reporting, and closing the loop. *(systems)*
6) Over the past several years, there was some discontinuity in campus' emphasis on assessment due to the personnel changes in the Office of Academic Programs. *(style)*

The analysis of responses for research question # 2 revealed the following challenges and areas for improvement:

1) There is a lack of clarity on the institutional assessment strategy for graduate education and "sporadic" strategy across programs depending on the accreditation status of the programs *(strategy)*;
2) There is a lack of internal motivation for program faculty to conduct assessment *(style)*;
3) There is a lack of consistency in assessment policy and planning at the institutional level *(strategy, structure)*;

4) There is a lack of basic knowledge and understanding of outcome-based assessment *(skills);*
5) There is a lack of visibility of student learning outcomes *(data)*.

The analysis of responses for research question # 3 revealed the following challenges and areas for improvement:

1) Governance Structure: While the institutional structure on assessment is evolving, at this time there is an unclear governance structure on the assessment of graduate programs *(structure)*
2) College Assessment Liaison (CAL) Position: The creation of the new CAL position is viewed positively, but the role of a CAL in graduate programs assessment is unclear *(structure / staff)*;
3) College/program level: There is a significant variation, from college to college, on the structure of the graduate program committees *(*both at the college and department level) (*structure*);
4) College/program level: There is a need to continue and strengthen opportunity for faculty professional development on assessment *(skills);*
5) College/program level: There is a desire to more broadly include students in assessment – both as active participants in the assessment process as well as staff support *(staff)*.

The analysis of responses for research question # 4 revealed the following challenges and areas for improvement:

1) Some technology is used by programs for data collection, storage, and analysis, but the availability and use of technology seem to differ for accredited vs non-accredited programs. Some programs still collect/analyze data in manual (paper-pencil) formats. *(system)*
2) For a large campus like this, there is a need for institutional leaders to explore an automated solution to support the campus-wide assessment of student learning. It is hoped that the campus could purchase a fully functional Assessment Management System to streamline, systematize, store, and facilitate a significant amount of assessment data for yearly assessments, external accreditations and peer review self-studies. *(system)*

The analysis of responses for research question # 5 revealed the following challenges and areas for improvement:

1) Understanding of the Outcomes-Based Assessment and Its Value: There is a general lack of understanding among faculty on what the "outcomes-based assessment", how it differs from scientific research, and its value for teaching and learning. *(skills)*
2) Resistance to Assessment: Some faculty's resistance to assessment stems from their view of assessment as "bureaucratic" and compliance-driven. (*style*)
3) Institutional Training on Assessment: While recent resurfacing of emphasis on assessment and faculty professional development in this area are encouraging, there is a desire to see this emphasis and faculty development/support after WSCUC re-accreditation. (*skills; style*)
4) Faculty Support: There is a lack of faculty support on assessment in terms of data collection, analysis, and reporting. *(systems [support])*
5) College Level Training on Assessment: College support of faculty professional development on assessment varies. (*skills)* Recognition of assessment as a valued form of academic scholarship that promotes student success is needed. (*shared values*).

The analysis of responses for research question # 6 revealed the following challenges and areas for improvement:

1) Empowerment: Assessment empowerment at all levels of the organization is needed for building a pervasive and enduring "culture of evidence". *(style)*
2) Professional Development and Support: a) broader training and support is needed to improve faculty engagement and application of outcomes-based assessment practices (*skills*); b) engaging new tenure-track and part-time faculty is critical to spread the assessment expertise and impact (*skills*); c) assessment needs to be a "grass-root" initiative with strong top-down (institutional) support (*style; shared values*); d) administrators should also participate in professional development on assessment to understand, promote, and support it. (*skills; style*)
3) Recognition: There is a sentiment that on this campus "assessment" is not valued as much as "advising" or "research" or "teaching". (*shared values*)
4) Shared Decision-Making and Communication: Grass-root voices and "locality" of assessment are needed; more transparency and communication across colleges and programs are needed. (*style*)
5) Vertical and Horizontal Alignment: There is a need for a greater and more meaningful alignment of people, data, technology and structural elements of assessment; the alignment of the "right people" with the "right

data" and the "right strategies" is strongly needed and desired to build a culture of evidence-based decision making on student learning and success. (*style*)

6) Institutional Guidance and Planning: There is a need for planning and guidance from senior leadership on the institutional strategy for assessment across colleges and programs; there is a need for flexibility, open-mindedness, transparency and communication on assessment through horizontal and vertical channels. (*style*)

DISCUSSION AND CONCLUSIONS

Informed by the theoretic framework of organizational change and the operational model of assessment infrastructure, the results of the study provided an in-depth look at the assessment /assurance of learning activities at a large public university located in the western region. Actionable recommendations on each of the elements of the assessment infrastructure at the institution level were made for the institution's continuous improvement in advancing a culture of evidence. The authors presented the research results to the institution's senior leadership to inform the development of the university's new Academic Master Plan and other university academic policies to support student learning and program excellence.

Theoretically, this action-driven research also testified the utility of Kezar's (2014) organizational change framework in building a culture of evidence and leading change in higher education. It also demonstrated the value of McKenzie's 7s model (Waterman, Peters, and Phillips, 1980) as an effective tool to review and improve a higher education institution's effectiveness in supporting its academic programs and student learning and success.

The next step of this exploratory study will be to focus on the strategic actions recommended to the institution for those aspects that are ripe for improvement. Additionally, to expand the focus of the investigation of campus assessment infrastructure to all academic programs, a survey instrument will be developed to collect quantitative data on the assessment infrastructure at the program, college, and institutional levels, to strengthen the results of this qualitative study. Institution assessment leaders are encouraged to utilize the conceptual framework and results from the empirical evidence in this study to improve the assurance of learning mechanisms on their campuses.

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A Pedagogical Model for Teaching Data Analytics in an Introductory Information Systems Python Course

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ABSTRACT

In this paper we answer the call of Sheppard (2012) and Brunner & Kim (2016) and present a model for teaching data analytics in an introductory information systems class using the Python programming language. The pedagogy follows an active-learning strategy in which students are assumed to have no statistical or Python programming training prior to class. The learning outcomes include: 1) Data: write code to import and manipulate data; 2) Visualization: write code to generate useful and theoretically sound data visualizations; 3) Feature Engineering: write code to generate, condense, or recombine variables (i.e., "features") of any type (numeric, categorical, ordinal, text) to provide the best possible predictive performance; and 4) Prediction: write code to estimate the effect/weight of a set of feature variables on a label variable. The course structure is detailed and student evaluations are presented.

Keywords: pedagogy, teaching, Python data analytics

INTRODUCTION

This paper motivates and reports the implementation of an information systems elective at a large, Western US university. The course was offered as Information Systems (IS) 115, entitled "Python Data Analytics." This course was created in response to employers who have expressed increasing demand that students be trained in data analytics. In this university's business school, the majors of IS, supply chain management, marketing, and accounting have all recently launched analytics courses specific to their majors. These classes typically use Python (IS, accounting) or R (supply chain, marketing). IS 115 is designed to exclusively teach Python, as the course creator felt it is a more robust language than R, which is typically used specifically for statistical analyses.

Our study extends the work of Frydenberg and Xu (2019) who discuss their introductory Python course at Bentley University in Massachusetts. Whereas Frydenberg and Xu (2019) focus on Python programming primarily as the end, this class uses Python as a means to an end. Many of the Python coding topics covered in Frydenberg and Xu (2019) are also covered in our paper; however, the code in IS 115 is applied to fundamental data analytics. Appendix 1 in Frydenberg and Xu (2019) lists the top 12 Management Information Systems (MIS) programs in the US according to the 2018 *US News & World Report* rankings. As of June 1, 2018, only MIT required a Python business analytics class for majors, and only Indiana University offered it as a business elective. Our university would have been classified in 2018 as a university without such a course as well. Just as our program has added a Python analytics course in 2019, we suspect other universities will quickly follow (Zhao and Zhao, 2016). Our paper presents one pedagogical approach to implementing such a program.

The first portion of the course covers fundamental programming in Python. The second portion of the course consists of students applying their newly learned Python programming skills to statistical data analytics. Empirical analysis includes student feedback from the Fall 2019 semester, the first time this course was taught.

The remainder of the paper proceeds as follows. Section II contains a literature review to motivate the use of Python in a class like IS 115 (as opposed to R). This section is followed by a course description (Section III), including learning outcomes. Section IV discusses our approach to teaching coding in Python, which is followed by Section V, a discussion of the data analytics portion of IS 115. Section VI covers assessments and exercises that are designed to give students a hands-on learning experience. We then present the student evaluations for the course to report how the course was received in its first iteration in Section VII. After the course evaluation section, we discuss implementing a course similar to this one for any interested reader in Section VIII, and then finish the paper with the conclusion in Section IX.

LITERATURE REVIEW

Much of this literature review follows Holman (2018), who implemented a course for statistical computing using Python as a second undergraduate statistics class at Colorado State University-Pueblo. Holman cites extant academic studies that demonstrate a robust demand for programming and data analysis business skills (Davenport & Patil, 2012, and Manyika et al., 2011), consistent with the input we receive from recruiting firms in our college business career center.

Holman (2018) then provides rationale for why he chose to teach Python for statistical analysis as opposed to some other language such as R. Nolan and Temple Lange (2010) advocate for using R in a statistics program, for example. R, however, specifically focuses on statistics and is not nearly as robust as Python. Python can be applied to a large variety of purposes (Perkel, 2015) and is becoming popular for teaching data science (Brunner & Kim, 2016). Holman (2018) goes on to compare Python to Java and cites Jayal et al. (2011) who compare the two languages and conclude that Python is preferred for teaching procedural aspects of coding whereas Java is more appropriate for teaching object-oriented programming. Holman (2018) then quotes Brunner and Kim (2016, p. 1,948) as stating, "Python (especially when using the Pandas library) is capable of performing most, if not all, of the data analysis operations that a data scientist might complete by using R." Finally, Holman (2018) cites the Institute of Electrical and Electronics Engineers (IEEE) and a 2018 Stack Overflow report to show that Python ranks as the top overall programing language (Cass, 2018) and that Python is the fastest growing computer language by usage among developers.

COURSE DESCRIPTION

The purpose of the IS 115 course is to help students establish a foothold in the area of data science. The course assumes that students have no background in programming or statistics and is intended as an entry-level course. In these assumptions, we differ from Holman (2018), who discusses a second-semester sequenced statistics Python course. IS 115 is not designed to be a "weed out" course with the associated low grades of such hurdle courses. Instead, the course is intended to help students develop skills and discover their interests, and help them choose the program that is best for their particular interests in the broad topic of data science.

For this course, we define data science as "a large and rapidly progressing field that seeks to explain relationships and patterns among various phenomena." In this class, we stress to the students that the knowledge produced from data science can be used in almost every aspect of life. In addition, we explain that the core disciplines of mathematics, statistics, and computer science primarily contribute to data science theory. Because IS 115 is currently being offered as an open elective, we also stress that many reference disciplines—such as business management and healthcare—draw from these core disciplines to apply principles of data science to address their own unique problems.

In this course, students begin by learning the basics of computer programming (in Python) necessary for data science including variables, data types, flow control, repetitions, and functions. Next, students learn how to use Python to import data and create useful visualizations to help understand the relationships among variables. In addition, students learn to calculate relevant statistics that allow them to make predictions about the future.

Professionally, IS 115 is meant to help students who have an interest in data analytics identify whether it is a career path they want to pursue and, if so, identify the programs that will best fit their interests. So that students can gain exposure to various fields that use data analytics, the course invites guest lecturers so students can hear faculty from a variety of programs explain how data science is included in each curriculum. The datasets we use for IS 115 come primarily from the fields of business management and healthcare. Professors who wish to model this course may use data from the field that is most applicable to their students.

The learning outcomes from the course are:

- Data: Write code to import and manipulate data;
- Visualization: Write code to generate useful and theoretically sound data visualizations;
- Feature Engineering: Write code to generate, condense, or recombine variables (a.k.a. "features") of any type (numeric, categorical, ordinal, text) to provide the best possible predictive performance
- Prediction: Write code to estimate the effect/weight of a [set of] feature variable[s] on a label variable

We implement a two-stage pedagogical strategy to accomplish these learning outcomes. In the first section of the class, we focus on learning the essentials of the Python computer language. In the second section of class, the focus shifts to applying the newly learned coding skills to data analytics.

FIRST PART OF COURSE: CODING PYTHON

The first portion of the course covers fundamental programming in Python similar to Frydenberg and Xu (2019). The coding material is presented in a textbook that one of the authors of this article wrote and is published through MyEducator. The text can be found at: https://app.myeducator.com/reader/web/1582d/ and is composed of 28 chapters. As the text was written specifically for this IS 115 class, the chapters outline the chronology of the course material. The first-part chapters include the topics from Chapters 1-11, respectively: variables, input-processing-output (I-P-O), flow control, collections, iterations, packages, data frames, reading and writing, functions, and debugging.

Within these chapters, key topics are Variables and Data Types (math operations, variable casting); Input/Output; Flow Control (boolean logic, if/else/elif statements); Functions (declaring, calling, libraries); Packages (installing, accessing); Data Sources (reading/writing, csv/xls/xlsx); and Data Mining (CRISP-DM). The intent of the first portion of class is for students to become comfortable with the logic and syntax of Python coding. As the course is designed to be an introductory programming course, many students will have no prior experience. As a result, many students seem to need additional help, as the course flows at a rigorous pace. Teaching assistants (TAs) can be employed to offer one-on-one help, office hours, and section reviews. If our suggested approach is implemented without TA help, there is a good chance that at least some students will struggle to keep up with the material. We highly recommend hiring TAs to help decrease the instructor time burden of helping students with specific programming questions.

SECOND PART OF COURSE: DATA ANALYTICS WITH PYTHON

The second portion of the course consists of students using their newly learned Python programming skills to apply statistical data analytics. Chapters 12-28 in the MyEducator online text cover each data analytics objective step-by-step. The chapters flow as follows: univariate statistics, univariate visualizations, bivariate numeric statistics, bivariate numeric visualizations, bivariate categorical statistics, bivariate categorical visualizations, bivariate mixed statistics, bivariate mixed visualizations, multivariate numeric visualizations, multivariate categorical visualizations, skewness, outliers, missing data, categorical data, automating univariate analyses, automating bivariate analyses, automating data preparation, and automating modeling.

Specific topics covered include: Bivariate Statistics (Pearson Correlation/Pearson Chi-Square, R/R^2, p-value, t-test, one-way ANOVA); Data Preparation (filtering, sorting, handling missing values, string manipulations, feature engineering); Data Visualization (bar charts, histograms, scatterplots, line charts); Advanced Data Visualization (understanding scatterplots with regression lines, understanding bar charts with t-tests, 3D scatterplots, identifying outliers with boxplots); Cluster Analysis (k-means, Euclidean distance); Text Processing (remove stop words, lemmatization, detect sentences, remove URLs/email/numbers/special characters, normalize case, expand verb contractions, extract n-grams, latent Dirichlet allocation); Multivariate Linear Regression (from descriptive bivariate analyses to predictive multivariate analyses, training vs. testing data sets, feature weights/coefficients, model evaluation/R^2/RMSE, assumptions, dummy codes); CART Models (regression vs. classification, decision tree algorithm); and Choosing Variables (model over/under/optimal-fit, dispensing with p-value).

ASSESSMENTS AND EXERCISES

IS 115 is constructed as an active-learning, hands-on learning experience. As such, there are many learning assessments and exercises for students. Chapter quizzes are taken on MyEducator.com and typically involve solving coding or analytics questions in Python. Checkpoints are intended to give additional hands-on practice with the material and are direct examples of some of the work that constitutes the final project. Checkpoints are also submitted through MyEducator.com. There are two in-class midterms which cover both code syntax and statistical methods. The final exam is a cumulative project which challenges the students to solve a real-world data analytics problem using Python. Appendix A contains the syllabus for additional details on the grading scheme in the class.

Throughout the course, students complete Python mini cases in the quizzes and checkpoints. Grading these assignments can be labor-intensive for TAs, especially with large sections. TAs have to divide their time between helping nascent student programmers learn how to code and grading many assignments throughout the semester. To help reduce the workload of grading by hand, one of the coauthors coded an auto-grading protocol that is robust enough to customize for each assignment turned in. The auto-grader reads in a grading rubric and then loops through each student assignment providing grades and details of where points are missed. The auto-grader code is currently proprietary, but there is work being done to make it publicly available.

STUDENT EVALUATIONS

Of the 48 students in the class, 27 provide student evaluations, or slightly more than 56%. The evaluation system that we use rates instructor effectiveness using five key indicators of performance. For the first, *Explained concepts effectively*, 77.7% of students agreed to this statement. Only 3.7% disagreed; the numbers do not sum to 100% because there is a choice for neither agree nor disagree. The second question asks if the instructor is *Well-organized*. As this was a new course and the textbook was being written in real-time as the course progressed, this question speaks directly towards the structure of the pedagogical method. Seventy-four percent of students agreed with the *Well-organized* statement with 15% disagreeing. The third question, *Provided opportunities to get help*, recorded 92.6% students agreeing with only 3.7% disagreeing. The availability of teaching assistants who were fluent in Python most likely helped drive this high percentage. For the fourth question, *Provided opportunities for student involvement*, 81.5% agreed with 7.4% disagreeing. The final question does not speak directly to the pedagogical method but asks if the instructor *Responded to students respectfully* with 96.3% agreeing with the statement and only 3.7% disagreeing. A final question addresses the course (and not instructor) by asking if it was *Intellectually enlarging*, which retuned with 92.6% agreement and 3.7% disagreement.

To understand the context of student feedback, we provide some of the anecdotal quotes that students offered as instructor feedback. With the question, *How effective was this instructor in teaching challenging concepts or skills?*, one student replied, "Pretty effective. A lot of the stuff he taught was honestly really quite advanced for beginning programmers. But even after the times when we just copied the code, at least we also gained an understanding of the logic behind it even if we didn't exactly know how to code the whole thing out ourselves. So when it came to homework time, we were tested to see if we could use the code and apply it in a new scenario, even if that meant copying and pasting the function from our notes from class, but I think this was a relatively effective way to check our understanding. So overall, I'd say he was pretty effective in this area, although sometimes in class his super advanced coding went right over our heads." Another student stated, "The python teaching was excellent, the stats teaching could have been a bit more clear. Sometimes it felt like we were just looking at stuff and had no idea what it actually meant or what it was doing." And a third expressed, "For this being a very challenging material that is new to most of the class, Dr. Keith did very well gathering material and teaching it in a way that was easy for us to understand and learn."

The second student, in particular, highlights one of the challenges of attempting to teach two new subjects, in the same class, without prerequisites. This student's comment that the Python training was excellent, but the statistics material was not taught deeply enough to truly understand, was expressed by several students. Some instructors may wish to make an introductory statistics course a prerequisite to this class, with this class being the application portion of the statistics training.

A second area of open feedback dealt with how well the course was organized. Virtually all students mentioned that they were giving feedback for the first time the course was taught. This comment is characteristic of the average student's feedback: "I'll round up to a generous 'effective.' This was the first semester this class was taught, so there were definitely some challenges as far as writing the textbook week by week as the class went along, but that is to be expected. Overall, the flow of the class material was logical and organized and all that." Speaking to the pedagogy of the class, another student commented, "the flow of ideas was easy to understand." A third student who spoke to the learning outcomes under this question stated, "This was the first time he taught this class, so of course there were some bumps along the way. I felt like I really improved as a programmer and I have some basic understanding of some statistical methods."

The final question that speaks to the pedagogy of the class for the open replies asked about *Opportunities for student involvement*. A student stated, "He would often ask for our input in coding a function and coming up with the logical steps behind it, but other times the techniques were too difficult to explain so he just had us copy the code down

from the textbook, but at least he'd go through the function with us and made sure we all kind of understood the logic going on behind it. That's just how it is when you're trying to teach new Python programmers advanced statistical techniques." A second student commented, "Always asked for questions and remembered we had a mix of experienced and unexperienced people taking the class." A third student stated, "He had some good class walkthroughs with us and also we had a lot of practice activities near the beginning of the semester. They waned a little bit in frequency as time went on. I think that progressive practice activities with explanations so that we can see your solution are awesome." A final student, speaking to the flexibility of the course pedagogy stated, "He gave us some liberty in the course to choose what we wanted to learn. I feel like this helped because we didn't go too fast to the point where we didn't learn things well."

Overall, the received student feedback is encouraging for the efficacy of the course pedagogy. If professors adapt the course without a statistics prerequisite, then for at least some students, the statistics portion will feel to them like they are just skimming the surface. For example, they will learn how to compute a p-value in Python, as well as how to interpret the p-value for hypothesis testing, but they may not understand the math or statistical intuition behind the p-value. As another example, the students will learn how to estimate a regression model, and how to interpret the estimated coefficients, R^2, and other output, but they will most likely lack the understanding of the linear algebra that drives the results.

IMPLEMENTING THE COURSE

IS 115, as designed, should be easily adoptable by any professor with a working knowledge of Python. Appendix A contains an example of a syllabus that may be used as a template. Since this course began in Fall 2019, it has been offered and completed in Winter 2020 in two additional sections. The course was not offered by the course creator in the winter semester, but by two part-time adjunct professors. One of the authors served as a TA for these sections and observed the adjunct professors both step into the course fairly seamlessly. Both Winter 2020 professors used the Appendix A syllabus as their template and the MyEducator text as the course material. Whether professors interested in this pedagogical approach use the MyEducator resource, a self-written study guide, or a different existing textbook, with the caveats discussed above, we believe it is possible to teach both introductory Python programming, as well as fundamental data analytics, in a single semester to students who have never had prior exposure to either.

CONCLUSION

We have presented a pedagogical approach to introduce students to Python coding and data analytics in an introductory information systems class. Consistent with prior literature (e.g., Frydenberg & Xu, 2019; Holman, 2018) we argue that Python is a robust computer language that is a formidable tool for statistical analysis, as well as having broader transferability to other programming languages than alternatives such as R. The paper details the sequence of teaching topics to achieve the four learning outcomes of writing code to: 1) import and manipulate data, 2) generate useful and sound data visualizations, 3) generate, condense, and recombine variables, and 4) predict the effect of feature variables on a label variable.

The paper also includes a description of the assessments and exercises that students perform to learn and demonstrate that they have mastered the learning outcomes. The use of TAs is discussed in facilitating the course, to include extra help for students and grading of coding assignments. An auto-grader is discussed that is robust to customization for various Python assignments. Finally, student evaluations are examined as empirical evidence for the efficacy of the pedagogical method.

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Appendix A. Syllabus

COURSE SYLLABUS
Information Systems 115: Python Data Analytics
Fall 2019

Instructor:	**TAs:**
Name: Mark Keith **Office phone**: 801-674-5159 **Office location**: 787 TNRB **Email**: mark.keith@gmail.com **Office hours**: Thursday 10:30 – 11:30pm	**Ethan Guinn, [email address]** **Sierra Johnson, [email address]** **Samuel Lopez, [email address]** **Office location**: 204 or 290 TNRB **Office hours**: see Learning Suite

Class Meeting Schedule
Section 1: T/Th 12:30am-1:45am, 151 TNRB

Final Exam
In class; Saturday, December 14th, 11am-2pm

Required Materials
MyEducator.com book (~~$69.99~~, $49.99) • Signup link: https://myeducator.com/s/1w8l10H7601 • Book content: www.myeducator.com/reader/web/1582a

Other Course Materials
Learning Suite will provide the course hub at https://learningsuite.byu.edu/. Log in with your NetID and Password.

Course Description
The purpose of this course is to help students get started learning in the area of **data science**. It assumes that students have no background in programming or statistics and is intended to be an entry level course. This is not a "weed out" course designed to give low grades. It's intended to help students develop skills and interest and help them chose the program that is best for their particular interest in the broad topic of data science.
Data science is a large and rapidly progressing field that seeks to explain relationships and patterns among various phenomenon. The knowledge produced from data science can be used in almost every aspect of life.

The core disciplines of mathematics, statistics, and computer science primarily contribute to data science theory. However, many reference disciplines—such as **business management** and **healthcare**—draw from those core disciplines to apply principles of data science to address their own unique opportunities.
In this course, students will begin by learning the basics of computer programming (in Python) necessary for data science including variables, data types, flow control, repetitions, and functions. Next, students will learn how to use Python to import data and create useful visualizations to help understand the relationships among variables. In addition, students will learn to calculate relevant statistics that allow us make predictions about the future.

Again, the purpose of this course is to get students started in the data science. Therefore, it is not meant to be a "weed out" course to choose students for a particular major. It is meant to help students who have a passion for data analytics to identify whether it is a career path they want to pursue and help them identify the programs that will best fit their interests. Therefore, we will likely hear from faculty from a variety of programs at BYU who will explain how data science is included in their curriculum. The datasets we use from come primarily from the fields of **business management** and **healthcare**

Learning Outcomes

1. **Data**: write code to import and manipulate data
2. **Visualization**: write code to generate useful and theoretically sound data visualizations
3. **Feature Engineering**: write code to generate, condense, or recombine variables (a.k.a. "features") of any type (numeric, categorical, ordinal, text) to provide the best possible predictive performance
4. **Prediction**: write code to estimate the effect/weight of a [set of] feature variable[s] on a label variable

Grading Policy

Grades will be initially recorded in MyEducator.com, but also transferred to Learning Suite occasionally throughout the semester (all grades will be transferred by the end of the semester). The following activities will provide the basis for assessing student performance. **Please note** that the content of the assessments, the number of assessments, and nature of the assessments may change during the semester.

Assessments (these may change during the semester; See Learning Suite for updates)	**Points**	**Total**
Professionalism	5	5
Quizzes 1. Forward: Dr DJ Patil 2. Ch 9: The Data Mining Process 3. Ch 10: Univariate and Bivariate Statistics	6 10 20	36
Checkpoints 1. Ch 2 2. Ch 3 3. Ch 4 4. Ch 5 5. Ch 6 6. Ch 7 7. Ch 8 8. Ch 11 9. Ch 12 10. Ch 13 11. Ch 14 12. Ch 15 13. Ch 16 14. Ch 17 15. Ch 18	 10 10 10 10 10 10 10 20 15 25 15 20 25 20 15	225
Guest speakers • There will sometimes be guest speakers. Attendance is required and will be tracked with a simple quiz of some type to be taken during class	5 each	5+
Exams 1. Midterm 1 2. Midterm 2 3. Final Project (in lieu of exam)	 100 150 200	450
Extra Credit via SONA System	1% (4 SONA credits)	
Total		**716**

Quizzes: Except where otherwise noted, quizzes are taken on MyEducator.com.

Checkpoints: Checkpoints are intended to give you "hands-on" practice with the material. They are direct examples of *some* of the work you will put into the final project. These are submitted through MyEducator.com

Grade Appeals: **Please see the TAs first if you have a question about a grade on a homework assignment, project, or exam**. If the TAs are unable to resolve your issue, please come and see me. You will have **two weeks** after an assignment score is posted to resolve any problems with that assignment.

Exams: There are two in-class midterms. There is no final exam. However, there is a final project in lieu of the exam that is due on the schedule final exam date for this course and section.

Late Work Policy: Unless otherwise stated in the assessment description, quizzes are deducted 25% for being late.

Professionalism: This is just a simple 5 points. The main idea here is to handle conflict well—both with your teammates and the instructor.

Letter grade	*Estimated* %
A	93-100
A-	90-93
B+	87-90
B	83-87
B-	80-83
C+	77-80
C	73-77
C-	70-73
D+	67-70
D	63-67
D-	60-63
E	0

Extra Credit: Extra credit varies from semester to semester. Ask your instructor about it for the details of your semester. It might include the Marriott School research participation program. However, your instructor may have a more relevant research project he or she would like you to participate in for extra credit.

Team Work

Let's talk about this in class

Marriott school course policies

See http://marriottschool.byu.edu/students/classroompolicies/ for Marriott School classroom policies.

Inclusion

At Brigham Young University's Marriott School of Business, we embrace the university's mission to "assist individuals in their quest for perfection and eternal life." We strive to foster an environment that is respectful of all backgrounds, perspectives, and voices, that "all may be edified of all" (D&C 88:122). By extending a spirit of consideration, fellowship, and charity to everyone, we enable the discovery of common values and unique insights as we each pursue our worthy secular and spiritual goals.

Schedule (very subject to change)

Date	*Topic covered*	*Book Chapter*	*Assignments due*
Tue - Sep 03	Course Introduction • Dr. D. J. Patil forum • Google Colab • Python syntax	Forward: Dr DJ Patil Chapter 1: Course Introduction and Setup	
Thu - Sep 05	Variables and Data Types • Variables • Data types • Math operations • Variable casting	Chapter 2: Variables and Data Types	**Forward: Dr DJ Patil**
Tue - Sep 10	Input/Output • Input • Output	Chapter 3: Input/Output	**Ch 2: Variables and Data Types**
Thu - Sep 12	Flow Control • Boolean Logic • if, else, elif statements	Chapter 4: Flow Control	**Ch 3: Input/Output**
Tue - Sep 17	Loops, Lists, and Dictionaries • Loops • Lists • Dictionaries	Chapter 5: Loops, Lists, and Dictionaries	**Ch 4: Flow Control**
Thu - Sep 19	Functions • Declaring • Calling • Functions in the Python library(ies)	Chapter 6: Functions	**Ch 5: Loops, Lists, and Dictionaries**
Tue - Sep 24	Packages • Installing • Accessing	Chapter 7: Packages	**Ch 6: Functions**
Thu - Sep 26	Data Sources • Reading/writing • .csv, .xls, and .xlsx files	Chapter 8: Reading and Writing Data to and from Files	**Ch 7: Packages**
Tue - Oct 01	The Data Mining Process • CRISP-DM	Chapter 9: The Data Mining Process: CRISP-DM	**Ch 8: Reading and Writing Data**
Thu - Oct 03	Midterm Exam 1 • Taken in-class • Covers Chapters 1-8 inclusive • Does not cover the CRISP-DM conceptual chapter • This gives is time to get checkpoints graded and returned before the exam		**Midterm 1**
Tue - Oct 08	Univariate Statistics • Mean, median, mode • Variance, standard deviation	Chapter 10: Basic Statistics	**Ch 9: The Data Mining Process: CRISP-DM**
Thu - Oct 10	Bivariate Statistics • Pearson Correlation	Chapter 10: Basic Statistics	

	• Pearson Chi-Squared • R vs R^2		
Tue - Oct 15	Bivariate Statistics • P-value • T-test • one-way ANOVA	Chapter 10: Basic Statistics	
Thu - Oct 17	Data Preparation • Filtering, sorting • Handling missing values	Chapter 11: Data Preparation	**Ch 10: Univariate and Bivariate Statistics**
Tue - Oct 22	Data Preparation • String manipulations • Feature engineering	Chapter 11: Data Preparation	
Thu - Oct 24	Data Visualization • Bar charts • Histograms • Scatterplots • Line charts	Chapter 12: Data Visualization	**Ch 11: Data Preparation**
Tue - Oct 29	Advanced Data Visualization • Understanding scatterplots with regression lines • Understanding bar charts with t-tests • 3D scatterplots • Identifying outliers with boxplots	Chapter 13: Advanced Data Visualization	**Ch 12: Data Visualization**
Thu - Oct 31	Happy Halloween! • No class (gives TAs time to grade your checkpoints and get you feedback) • Study and prepare for Midterm 2		**Ch 13: Advanced Data Visualization**
Tue - Nov 05	Midterm 2 • Taken in-class • Covers Chapters 9-13		**Midterm 2**
Thu - Nov 07	Cluster analysis • k-means • Euclidean distance	Chapter 14: Cluster Analysis	
Tue - Nov 12	Text Processing: Cleaning Text • Remove stop words • Lemmatization • Detect sentences • Remove URLs, emails, numbers, special characters • Normalize case • Expand verb contractions	Chapter 15: Text Analysis	**Ch 14: Cluster Analysis**
Thu - Nov 14	Text Processing: Feature Hashing • Extract n-grams • Latent Dirichlet Allocation	Chapter 15: Text Analysis	
Tue - Nov 19	Multivariate Linear Regression • From descriptive bivariate analyses to predictive multivariate analyses	Chapter 16: Multiple Linear Regression	**Ch 15: Text Analysis**

	• Training vs Testing data sets • Feature weights/coefficients • Model evaluation: R^2, RMSE		
Thu - Nov 21	Advanced MLR • Assumptions • Dummy codes	Chapter 16: Multiple Linear Regression	
Tue - Nov 26	**Friday Instruction**		
Tue - Dec 03	CART Models • Regression vs Classification • Decision tree algorithm	Chapter 17: CART and Other Models	**Ch 16: Multiple Linear Regression**
Thu - Dec 05	Choosing Variables • Model over-, under-, optimal-fit • Dispensing with the p-value	Chapter 18: Model Fit and Feature Selection	**Ch 17: CART and Other Models**
Tue - Dec 10	Modeling Competition 1 • Winner gets to choose any non-Exam assignment to get a 100% score		**Ch 18: Model Fit and Feature Selection**
Thu - Dec 12	Modeling Competition 2 • Winner gets to choose any non-Exam assignment to get a 100% score		
Sat - Dec 14	Final Exam: 151 TNRB 11:00am - 2:00pm		**Final Project Professionalism Extra Credit**

Incorporating IT Certification Performance into a Computing Course Grade: Insights from a Case Study

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ABSTRACT

The Computer Science and Management Information Systems Departments are increasingly incorporating the IT professional certifications into the course and program curricula in order to provide some edge to their graduates in the job market. However, successful integration of certifications into the curriculum requires careful planning and appropriate strategies. One issue that particularly requires thoughtful consideration is how to incorporate student performance on the certification test into the student grade for the course. There are different alternatives that can be employed towards this end. This paper describes these alternatives and presents a case study that discusses the pros and cons of these alternatives.

Keywords: CS/MIS Curriculum, IT Professional Certifications, Enhancing CS/MIS Curriculum, Incorporating IT Professional Certifications into CS/MIS Curriculum

INTRODUCTION

The Computer Science (CS) and Management Information Systems (MIS) departments employ varied strategies to ensure their graduates possess some readily marketable IT knowledge and skills on entering the job market (Randall and Zirkle, 2005; Husinger and Smith, 2008; Rajendran, 2011). Typically, these strategies include the following: (1) equip students with high demand IT skills (Yew, 2008; Wittman, 2010); (2) enhance practical IT knowledge and skills through internships, industry projects, on-campus work projects or simulated projects (Yew, 2008; Coes and Schotanus, 2009; Janz and Nichols, 2010; Tan and Venables, 2010; Wittman, 2010); and (3) enhance IT knowledge and skills by integrating IT professional certifications into the curriculum (Randall and Zirkle, 2005; Husinger and Smith, 2008; Hartley, 2008; Rajendran, 2011; Greene, 2015; McCaffery, Backus and Maxwell, 2020).

IT professional certifications hold significant relevance and merit from multiple perspectives. First, major IT industry leaders, such as Microsoft, IBM, Oracle, Cisco, etc. actively promote the professional certification programs designed to gauge the understanding of concepts and skills critical to the effective use of their technologies (Coes and Schotanus, 2009; Wenzel, 2011; Stackpole, 2016; Walrad, 2017; Blomquist, Farashah and Thomas, 2018; White 2018). Second, the organizations that support certification programs deal with large diverse populations and have access to the latest changes in the information technologies, and, are therefore better equipped to design comprehensive, validated tests and keep them current. Third, prospective employers see an earlier payoff from hiring students from an academic program which employs certification-based coursework, because such a program tends to produce students with current skills and are ready to make immediate contributions to the workplace (Yang and Wang, 2009; Tan and Venables, 2010; Land and Reisman, 2012; Greene, 2015). Fourth, for the students, the certifications provide an external, objective evidence of their knowledge and expertise in an IT area, which gives them an edge in a competitive job market (Levinson, 2010; Tan and Venables, 2010, Stackpole, 2016; White, 2018). Lastly, for the faculty, a certification test provides an externally validated measure of the quality and depth of material covered within a course and student mastery of that material (Greene, 2015). Thus, the professional certifications possess considerable significance from employer, student, as well as faculty perspectives.

While the first and second strategies are intuitive and straightforward, the third strategy - integrating IT professional certifications into the curriculum - requires careful planning and consideration. Specifically, the faculty have to make decisions with respect to two factors: (1) identifying a certification that corresponds amply, if not exactly, with the course content, and, importantly, (2) how to effectively incorporate student performance on the IT certification into the course grade. The second factor is the focus of this research. While the existing literature presents the merits and relevance of integrating an IT professional certification into a computing course, no research has

presented and evaluated the alternatives for incorporating the certification performance into the course grade. This research examines this critical factor and thus provides validated, practical guidelines for the faculty interested in incorporating an IT professional certification into a CS or MIS course.

The next section examines the first factor, and the subsequent section describes various alternatives for incorporating the certification grade into the courses grade and then presents a case study that discusses the pros and cons of these alternatives.

CATEGORIES OF IT PROFESSIONAL CERTIFICATIONS

IT professional certifications may be categorized along two primary dimensions: (1) content, and (2) scope. The content dimension classifies a certification based on whether it is technology-independent and stresses general, non-proprietary skills and concepts (for example, Project Management Professional, Certified Usability Analyst, and Certified E-Commerce Consultant certifications); or, it is technology-based and measures knowledge and competence specific to a technology and computing platform (for example, Oracle SQL Certification, Certified Cisco Network Associate, Certified Cisco Network Professional, Microsoft Certified IT Professional Database Administrator). The scope dimension classifies a certification based on whether it requires passing only one test (for example, Oracle SQL Certification) or multiple tests (for example, Microsoft Certified IT Professional Database Administrator).

Since an IT certification is incorporated into a specific Computer Science or Management Information Systems course with a fixed one semester duration, it stands to reason that a certification requiring only one test, based on the technology covered in the course, will be the logic option towards this goal. For instance, an instructor may decide to incorporate Oracle Java Certification (1Z0-808) in a Java Programming course, Oracle SQL Certification (1Z0-071) in a database course, or Cisco Certified Network Associate Certification (200-30 CCNA) in a computer networking course.

INCORPORATING CERTIFICATION PERFORMANCE INTO A COURSE GRADE: A CASE STUDY

Incorporating an IT certification performance into a course grade requires two specific considerations: (1) whether the certification will be a mandatory or optional component of the course, and (2) what weight the performance on the certification test will be assigned towards the overall course grade.

With respect to the second factor, an instructor may even consider assigning a course grade based on just the student performance on the certification test; after all, an IT certification test is expected to objectively assess one's knowledge and competence in a specific IT domain. Consequently, it may be argued, that the certification test score may actually be a more valid and objective assessment of a student's knowledge and competence, than the class tests and quizzes, and therefore it would be rational to substitute the certification test performance for the overall course performance.

The authors of this paper are faculty in the College of Business at a medium-sized public university and have had IT certifications incorporated into their respective courses over several semesters. The following sections describe their experiences with alternative strategies for incorporating students' performance on certifications into their overall course grades, and, based on their experiences, the authors suggest the most effective strategy for this purpose.

Oracle PL/SQL Certification

The MS/MIS coursework at this university includes two required database courses: Fundamentals of Database Design and Development, and Advanced Database Applications Development. In both of these courses, Oracle is employed as the underlying database management system software. The first course covers the database theory and fundamental SQL (Structured Query Language) programming, and the second course covers advanced SQL, and PL/SQL programming.

The MIS faculty decided to incorporate the Oracle PL/SQL certification into the advanced database course; however, it was initially introduced as an optional part of the course requirements. Accordingly, if a student passed the certification test, he got five bonus points added to his overall course grade points of possible 100. Over a couple of semesters, we learnt that the students who had not performed well during the semester were primarily the

ones who took the certification test. Obviously, these students needed the bonus points to earn a satisfactory course grade, but the students with high overall grades did not need any bonus points, and therefore lacked an incentive to take the test. Consequently, the test was changed from optional to required, and assigned a higher weight of 10% of the overall grade. With this change, nearly all students attempted the test. However, interestingly, we discovered that some students who had otherwise performed poorly in the course, performed outstandingly on the certification test. After some research, we learnt of some certification dumpsites where a students could purchase the likely questions on the certification tests, and simply memorize the answers to the questions, and thus perform well on the test without learning the underlying material. Consequently, the grading for the certification test was further revised. Accordingly, the performance on the test still counted 10% towards the overall grade; however, the student received this grade only if he achieved a passing grade based on the remaining 90% of course grade. This strategy proved effective, as it seemed to motivate students to put in consistent effort during the semester in order to ensure an adequate grade in the course, which also helped in a satisfactory performance on the certification test.

In order to discourage the students from using the test dumpsites, they were frequently reminded throughout the semester that - as an external, objective evidence of a student's knowledge and skills in a specific IT area – a certification is an asset for a good student, but a liability for a poor student. The instructors also stressed that a technical interview, now a norm during the IT professional hiring process, will undoubtedly reveal the factual depth of a student's knowledge and competence; therefore, a certification, accompanied by positive perceptions about student knowledge and competence will strengthen his candidacy. On the contrary, a certification accompanied by negative perceptions about student knowledge and competence will raise questions about how the student was able to pass the certification test and thereby critically undermine his employment likelihood (Bort, 2011).

All topics included on the PL/SQL certification are covered during the semester and the students take the test by the end of the semester. The students prepare for the certification as the test topics are presented in the class, and every attempt is made to complete the coverage of the topics at least three weeks before the expected completion date for the test. If a student fails the test, they are encouraged to review the test topics and retake the test in order to pass it. Nearly all students now attempt the certification test, with approximately 90% success rate.

One point of interest for this research was to determine whether the student performance on the certification test could substitute the student performance over the semester. For this purpose, using Minitab 8, we examined the relationship between the certification test scores and the semester average grade, which is a weighted average of quizzes, midterm exam and the final exam. The quizzes were conducted over the semester and included SQL, as well as PL/SQL coding questions. The midterm exam comprised primarily of SQL coding, whereas the final exam primarily covered PL/SQL coding. The following table presents the various items included in the semester grade.

Table 1: Course Grading (Advanced Database)

Item	Weight
Midterm (SQL)	30%
Final (PL/SQL)	40%
Quizzes	10%
Homework	10%
Oracle PL/SQL Cert	10%
Total	100%

This analysis sample comprised of data from 169 students grades over four semesters. It is noted that the course content and requirements were uniform during these semesters. The table below lists the average and standard deviation of the midterm, final, the semester average grade excluding the certification grade, and the certification grade.

Table 2: Average and Standard Deviation of Various Grade Items

	Midterm	Final	Semester Avg w/o Cert Grade	Cert Grade
Average	80.53	76.33	84.28	73.05
Std. Dev.	8.94	13.01	8.36	17.31

The correlation analysis results are presented below.

Table 3: Correlation Analysis Between Certification Grade and Semester Average

R Square	0.263492564
Adjusted R Square	0.255977182
Standard Error	14.99001427
Observations	169

This analysis suggested a weak correlation between the certification performance and semester average, with the coefficient of determination R^2 value of about 25%. The R^2 represents the *proportion of variability* in the dependent variable (certification performance) that can be explained by the independent variable, (semester average grade) and good models are ones that exhibit a high R^2. This result indicates a poor "explanatory power" of this model for this data. This result was not surprising given that the content of nearly 50% of the semester average was based on SQL coding, whereas the certification performance was entirely based on PLSQL coding. Furthermore, the nature of the questions on the certification test and questions on various assessment items in the class were different. While the quizzes, midterm and final comprised primarily of coding questions, the certification test consisted of objective questions only, which also likely contributed to the weak correlation observed. Consequently, the correlation analysis between performance on the certification test and the class average clearly suggests that, for this or similar courses, it may be advisable to incorporate the performance on the certification tests as part of the overall course performance, but not as a substitute for the overall course performance.

Cisco CCNA Certification

In the computer networking area also, the MS/MIS coursework at this university includes two required courses: Fundamentals of Computer Networking and Advanced Computer Networking. The network fundamentals course covers the theoretical concepts such as layered architectures and key protocols utilized in layered computer network architectures. The course concentrates primarily on the lower layers of computer network architectures. The course also includes hands-on experiments in the Network Laboratory. The second course covers advanced concepts such as protocols and methodologies used in upper layers of the computer network architectures, and includes extensive hands-on networking assignments and exercises. The MIS Department Network Laboratory has been designed primarily using Cisco equipment and software, as this brand is very commonly used in business enterprises. Students learn networking concepts along with the Cisco's implementation of the networking concepts, by experimenting on them in the network laboratory. Consequently, the topics covered in the two courses prepare students for the Cisco Certified Network Associate (CCNA) test, incorporated as part of the course requirements, and adopted as one of the objectives of the computer network courses.

When first incorporated, the CCNA certification was introduced as an optional, self-paced component of the advanced network course, and the students were given 10% of the certification percentage score as bonus points towards their overall course grade. However, very few students attempted the test and the passing rate was low. After two semesters, the test was transitioned into a required component of the coursework and the CCNA test grade accounted for 20% of the overall course grade. However, after one semester, recognizing the difficulty level and the extent of coverage in the CCNA exam, the weight of the certification performance towards the semester was altered. Consequently, if a student passed the test, regardless of the score, he was awarded an "A" grade in the course; otherwise, the student percentage score on the test was given a 20% weight towards the semester grade for the course. With this approach, we learnt that some students simply concentrated on passing the certification test, as it ensured an A in the course even if they were otherwise failing the course. Therefore, grading for the certification had to be modified and it no longer resulted in an automatic "A" grade in the course if the students passed the CCNA test. Instead, the CCNA percentage test grade counted 20% towards the course grade, regardless of whether

the student passed or failed the test. This approach has been the most effective as it motivates the students to work hard during the semester as well as devote significant effort towards the certification test, in order to achieve a satisfactory grade in the course.

The students are instructed to start preparing for the test from the beginning of the second semester and the course quizzes and tests include questions covered on the CCNA test. The passing rate on the first attempt is about 80%.

For this course also, we aimed to learn whether it would be rational to substitute student performance on the certification test for the course grade. Consequently, we conducted the correlation analysis to investigate the nature of relationship between the student performance during the semester and his performance on the CCNA certification test. The dependent variable was the certification score, and the independent variable was the student performance during the semester, as measured by the overall course grade, a weighted average of the grades on homework, quizzes, midterm and the final exam. Table 4 presents various assessment items and their weight towards the course grade.

Table 4: Course Grading (Advanced Networking)

Item	Weight
Midterm Test	25%
Final Test	35%
Labs	10%
Quizzes	10%
Certification Test	20%

The table below lists the average and standard deviation of the midterm, final, the semester average grade excluding the certification grade, and the certification grade.

Table 5: Average and Standard Deviation of Various Grade Items

	Midterm	Final	Semester Avg w/o Cert Grade	Cert Grade
Average	81.77	80.35	82.60	80.26
Std. Dev.	14.74	15.26	10.41	12.89

The table below presents the correlation analysis results.

Table 6: Correlation Analysis Between Certification Grade and Semester Average

R Square	0.4738
Adjusted R Square	0.4710
Standard Error	9.67500
Observations	193

The analysis sample comprised of 193 observations and yielded a coefficient of determination R^2 of close to 47%. Thus, student performance during the semester explained 47% of the variability in performance in certificate test. Although, this R^2 represents a decent power of explanation, it is not strong enough to suggest that the performance on the CCNA test fairly represents student performance during the semester. The primary and significant factor for this lack of strong correlation may be that the nature of the class tests are different from the certification test. The certification test is a computer-based test, whereas the class tests are paper-based. The certification test, being a computer-based test, includes significant number of simulation-based, and drag and drop questions that are not possible in a paper-based test. Consequently, significant number of questions on the certification test can be different from the class tests and therefore the lack of strong correlation between the certification performance and the class performance. Thus, this analysis suggests that in computer networks courses also, it would be advisable to

use the certification performance as a component of the overall semester grade, but not as a substitution for the semester grade.

CONCLUSION

Continued outsourcing, in many forms, of IT jobs in the US has forced the CS and MIS Departments at the universities to devise strategies to provide their graduates some edge in securing internship/employment opportunities in the competitive IT job market. Typically, the strategies employed include equipping students with the in-demand, readily marketable skills, and imparting hands-on experiences through live or simulated projects. Lately, another strategy increasingly being employed is highlighting student practical knowledge and skills by integrating IT professional certifications into the academic coursework, as these certifications offer an external, objective assessment of one's knowledge and skills in one or more information technologies. One critical consideration with this strategy however is to determine the most effective way to incorporate student performance on the certification test into his course grade. Based on extensive experience with such efforts, this research recommends the following. First, make the test mandatory; otherwise, if it were optional, very few students will likely attempt the certification test, and only those students might attempt the test who have not otherwise performed well in the course, as a desperate effort to improve the grade. Second, assign it a specific weight towards the final grade, but not use it as a substitute for the performance in the course, as the material covered in the certification test and the testing methodology may differ from the content and testing methodology of various assessment items of course during the semester. The weight should be commensurate with the effort that would have to be expended in order to pass the test, i.e., the more challenging the test, the higher the weight. These recommendations should help an interested faculty successfully integrate an IT certification into a CS/MIS course and thereby provide an edge to their students in the job market.

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Concentrations in the Undergraduate Accounting Major: Preparing Students for the Evolving CPA and Beyond

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ABSTRACT

The National Association of State Boards of Accountancy (NASBA) and the American Institute of Certified Public Accountants (AICPA) have proposed a new "core + disciplines" licensure model for the Certified Public Accountant (CPA) qualification (NASBA 2020; NASBA and AICPA 2020). We first check whether any of the top undergraduate accounting programs in the United States offer any concentrations that conform to this proposed model. We find that less than 20 percent of the top undergraduate programs in accounting offer any concentrations and that these concentrations do not conform to the proposed licensure model. Then, we suggest concentrations that better equip undergraduate accounting students to earn the CPA license under the proposed model. We also propose one concentration for students who do not plan to become CPAs.

Keywords: CPA Evolution, Undergraduate Accounting Concentrations, Undergraduate Curriculum Design

INTRODUCTION

The National Association of State Boards of Accountancy (NASBA) and the American Institute of Certified Public Accountants (AICPA) have begun working on updating the educational (and licensure) requirements to become a Certified Public Accountant (CPA) in the United States of America (NASBA 2020; NASBA and AICPA 2020). According to the CPA Evolution website, based upon feedback from over 3,000 stakeholders and extensive deliberations, the proposed licensure model includes a "core + disciplines" approach (see https://www.evolutionofcpa.org/). The core, which must be completed by all students, will consist of the following four areas (tested in three sections of the new CPA examination): accounting, auditing, tax, and technology. Students would then be required to choose one of the following three disciplines to complete the education (and licensure) requirements to become a CPA beginning in January 2024: business reporting and analysis, information systems and controls, or tax compliance and planning. We examine if any of the top undergraduate accounting programs in the USA currently offer concentrations that can easily be adapted to this new licensure model. Of the top 50 undergraduate accounting programs (as ranked by the *Public Accounting Report* in 2019), only eight currently offer any concentrations in the accounting major. Over half of these eight require students to select a concentration. Existing concentrations relate to different aspects of financial accounting and information systems, and to a lesser extent managerial accounting and business analytics. Only one program has a concentration related to taxation.

In view of the changing landscape of accounting, we recommend that undergraduate accounting programs consider adding concentrations to their undergraduate accounting major consistent with upcoming changes to the CPA exam. We propose a variety of concentrations to help accounting programs begin the process of adapting their curricula to best serve students entering undergraduate accounting programs. These proposed concentrations streamline the current number of accounting credits that students typically complete so that no additional accounting credits will be required to complete the undergraduate degree in accounting. It is important that accounting programs begin working on creating such concentrations now so that these concentrations are in place before January 2024 when the new CPA licensure model goes into effect. While CPA licensure guides many aspects of accounting curricula, only half of accountants in the USA are licensed CPAs (Accounting Institute for Success 2020). As such, accounting programs should also consider adding concentrations that serve the needs of their students who do not plan to pursue CPA licensure.

MOTIVATION

NASBA and AICPA (2020, 1) recognize that "the body of knowledge required of newly licensed CPAs is growing rapidly." In addition, entry-level CPAs are increasingly responsible for duties once assigned to more experienced staff, while tasks previously reserved for "newly licensed CPAs are being automated, offshored, or performed by

paraprofessionals" (NASBA and AICPA 2020, 1). In this evolving professional model, all CPAs must have excellent critical thinking and problem-solving skills. NASBA and AICPA (2020, 1) note that "to protect the public, the CPA licensure model must reflect these changes." To address these issues, they have proposed a "core + disciplines" licensure model (NASBA and AICPA, 2020, 2) that better reflects the increased knowledge base required of CPAs as well as one that "reflects the realities of practice, requiring deeper proven knowledge in one of three disciplines that are pillars of the profession, and is adaptive and flexible, helping to future-proof the CPA as the profession continues to evolve."

Based on these features of the proposed CPA licensure model, we propose concentrations in the undergraduate accounting program that will enable students to be better prepared for the CPA examination and careers in accounting. In addition, we also propose a concentration for students who do not plan to become CPAs. These students may pursue a variety of careers in which licensure is not required, or they may pursue other professional certifications like the Certified Management Accountant (CMA) qualification. Offering several concentrations geared toward various career paths in accounting should increase students' awareness of the wealth of career options for accountants, including and beyond working as a CPA. We hope this will increase the appeal of accounting as a major and help to increase accounting enrollments.

CURRENT CONCENTRATIONS

The *Public Accounting Report* (PAR) issues annual rankings of top undergraduate, master's, and doctoral accounting programs based on surveys of accounting faculty. We examine the 2019 (latest) PAR rankings (PAR 2019) to assess whether existing concentrations in accounting majors at top schools across the country align with the model proposed by NASBA and the AICPA. Of the top 50 undergraduate accounting programs, just eight (16 percent) offer concentrations in the accounting major[1]. Five of these eight schools require students to select a concentration. Of the three schools that offer but do not require a concentration, two offer only a single optional concentration. Some schools' concentrations afford students the opportunity to specialize in a particular type of accounting; others offer opportunities to explore areas outside but complementary to accounting (e.g., finance, international business, supply chain management).

Four of the eight schools offering concentrations in the accounting major have a concentration geared toward CPA licensure. At some, the CPA concentration is the default option or is simply called the accounting concentration. Three schools offer concentrations related to financial accounting other than the CPA concentration (e.g., financial services, corporate accounting, financial analysis). Five schools offer concentrations related to information systems and technology, though these concentrations are diverse in their specific focus (e.g. accounting and information systems, information systems audit, information management, information technology). Concentrations focused on managerial accounting and business analytics are offered at two schools, while concentrations related to internal auditing, governmental and nonprofit accounting, and taxation are offered at one school each.

These eight schools offer diverse options, but most top accounting schools offer no formal concentrations at all. Though many programs likely include content related to NASBA and AICPA's suggested disciplines (business reporting and analysis, information systems and controls, and tax compliance and planning), most existing concentrations do not correspond closely with these disciplines, and no school offers concentrations related to all three disciplines. While some programs have existing CPA concentrations, a single CPA-focused concentration will likely not suffice going forward.

PROPOSED CONCENTRATIONS

To align undergraduate accounting programs more closely with the model proposed by NASBA and the AICPA, we suggest an updated "core + disciplines" model for undergraduate accounting programs. We recommend that the core (which must be completed by all accounting students, beyond the introductory accounting courses typically required of all business majors) include at least one course in each of the following four areas: intermediate accounting, auditing, federal income taxation for individuals, and the use of technology in accounting. Three of these four courses are already taught in virtually every undergraduate accounting program in the USA. However, to our

[1] The data for other schools follow a similar pattern. We expanded the list of top accounting programs from the PAR top 50 to the top 100 accounting programs according to the College Factual® website and found very similar results: 18 of the top 107 (or approximately 17 percent) accounting programs offer concentrations in their undergraduate degree programs.

knowledge, virtually no programs currently have an undergraduate course on the use of technology in accounting outside the use of common spreadsheet and/or database software. Such a core accounting technology course could include, but does not need to be limited to, accounting data analytics and Excel programming (Andiola, Masters, and Norman 2020; Ballou, Heitger, and Stoel 2018; Dzuranin, Jones, and Olvera 2018; Sledgianowski, Gomaa, and Tan 2017; Vincent, Igou, and Burns, 2020; Zhan, Her, Hu, and Du 2018).

The proposed "Accounting Core": Accounting Data Analytics I or Accounting Technology I, Auditing I, Federal Income Taxation I (Individual), and Intermediate Accounting I (four courses)

We recommend a set of proposed concentrations tied to the CPA Evolution model: business reporting and analysis, information systems and controls, and tax compliance and planning. At this point in time, there is no formal guidance from either the AICPA or NASBA regarding specific course recommendations. Our proposed concentrations are based on our efforts to align (to the extent possible) current courses offered in most undergraduate accounting programs in the USA with the proposed "core + disciplines" licensure model. In addition, since only half of accountants are CPAs (Accounting Institute for Success 2020), we recommend one concentration for students who do not plan to pursue CPA licensure. A variety of other professional designations are available to accounting students today; arguably the most prestigious is the Certified Management Accountant (CMA) offered by the Institute of Management Accountants (IMA) in conjunction with the Institute of Certified Management Accountants (ICMA). Students can also be permitted to create a personalized concentration by selecting courses beyond the core courses based upon their interests and planned career paths.

The proposed "CPA Business Reporting and Analysis" Concentration: Advanced Financial Accounting, Cost and Managerial Accounting, Financial Statement Analysis, and Intermediate Accounting II (four courses)
The proposed "CPA Information Systems and Controls" Concentration: Accounting Information Systems, Accounting Data Analytics II or Accounting Technology II, and Auditing II (three courses)
The proposed "CPA Tax Compliance and Planning" Concentration: Federal Income Taxation II (Partnerships, Corporations, and other business entities), Taxes and Business Strategy, and Advanced Topics in Taxation (three courses)
The proposed "CMA" Concentration: Accounting Data Analytics II or Accounting Technology II, Cost and Managerial Accounting, Financial Statement Analysis, and Management Control Systems (four courses)
The proposed "Personalized" Concentration (students select four of the following ten courses): Accounting Information Systems, Accounting Data Analytics II or Accounting Technology II, Advanced Financial Accounting, Advanced Topics in Taxation, Auditing II, Cost and Managerial Accounting, Financial Statement Analysis, Intermediate Accounting II, Management Control Systems, and Taxes and Business Strategy

These proposed concentrations utilize and build upon current courses offered in virtually all accounting programs (see also Nagle, Menk, and Rau 2018). Curricula in each concentration could be designed to conform to the framework introduced by Lawson, Blocher, Brewer, Cokins, Sorensen, Stout, Sundem, Wolcott, and Wouters (2014), which emphasizes the integration of foundational, accounting, and broad management competencies. Some of the courses included in the undergraduate concentrations may currently be offered only in the graduate program. Schools may choose to offer some of these courses at the undergraduate level or co-list them at the graduate and undergraduate level to offer more focused degree options. As a result, concentrations may be structured differently at schools with graduate programs in accounting compared to those without such programs. Schools may or may not choose to offer each of these concentrations, depending upon the size of their accounting programs. The choice of which and how many concentrations to offer should be made to emphasize the school's strengths, serve the interests of its students, and utilize the expertise of its faculty.

Each concentration is designed to conform to **t**he AACSB's new standards for business education, which were affirmed by the AACSB's membership in July 2020. The new AACSB business standard for learner success (Standard 4) states that schools should deliver content that is "current, relevant, forward-looking," "cultivates agility with current and emerging technologies," and "promotes and fosters innovation, experiential learning, and a lifelong learning mindset" (AACSB 2020, 37). In addition, courses in both the accounting core and each concentration will address content listed in AACSB's standards for accounting accreditation, including financial and managerial accounting, taxation, auditing and assurance, and professional ethics (Standard A4, AACSB, 2018, 24). By providing focused concentrations for accounting students we believe that schools will be able to better conform to these standards. Instead of requiring students to achieve superficial knowledge in every discipline, focused

concentrations will enable students to develop deeper skills and knowledge in their chosen discipline while learning to apply fundamental skills like data analytics.

CONCLUSION

As CPA licensing requirements change and competition for colleges to attract students increases, accounting programs need to adapt their offerings to provide a more attractive menu of options that addresses the rapidly changing skills and competencies required by practice. NASBA and the AICPA's CPA Evolution initiative provides a blueprint for schools to adapt a "core + disciplines" approach toward developing concentrations in the accounting major. Currently, over 80 percent of the nation's top accounting programs offer no concentrations within the undergraduate accounting major; their students follow a generic CPA route by default. Those few programs that do offer separate concentrations tend to focus on non-CPA financial accounting, managerial accounting, or accounting information systems. Rather than rely on ad hoc advising to steer students towards the classes that will prepare them for the evolving CPA licensing requirements, we recommend that undergraduate accounting programs should offer several concentrations to guide students to master the CPA disciplines and align their education with practice. We propose a menu of four concentrations: CPA Business Reporting and Analysis, CPA Information Systems and Controls, CPA Tax Compliance and Planning, and CMA.

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An Exercise To Introduce Undergraduate Students To The Insurance Sales Process

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ABSTRACT

A traditional undergraduate insurance course typically includes a review of general principles, the insurance industry, and the specifics of individual lines. Some courses may also cover risk management and employee benefits. However, few include an opportunity to practice the insurance sales process. Because some students will ultimately pursue a career as an insurance agent or financial advisor, it seems appropriate to incorporate an experiential sales component to aid in their career preparation. This paper describes an activity that can be used to simulate the sales process in an undergraduate insurance course.

Keywords*:* insurance sales, insurance pedagogy, sales process, sales pedagogy

INTRODUCTION

Rapid advances in technology are changing the way that colleges and universities interact with students. Online courses, blended programs, and flipped classrooms have been become main-stream solutions to the ongoing search for increased efficiency and innovation. The trend is obviously not unique to higher ed, as organizations of all types are forced to embrace the benefits – and challenges – of constant technological advancements.

As the pace of technological change continues to accelerate, the implications on curricular development are magnified. Today's business student must not only learn traditional business content, but must also acquire the basic technology skills required to adapt in an increasingly dynamic business environment.

However, the purpose of this paper is not to explore the best ways to incorporate technology skills in a business curriculum. In fact, it's seemingly just the opposite. Rather than focusing on analytics or SEO, our purpose is aligned with an unintended casualty of a heightened focus on technology: a general decline in student soft skills.

A recent Workplace Learning Report released by LinkedIn identified soft skills as the number one priority for talent development in 2018. As technology standardizes traditional business functions, it seems that interpersonal skills are on the decline. While colleges and universities certainly provide more than job training, they are also uniquely equipped to help develop the relational skills that employers find desirable in new hires. Coaching a student through a basic sales presentation may provide lasting benefits over the course of a career.

But how – and where – should soft skills be taught? Take the sales process, for example. Selling and managing a client relationship feels like a topic for a Personal Selling course. The downside of course, is that many students never take Personal Selling. For example, a finance student who plans to pursue a career as an insurance agent will learn about characteristics of insurance products, but where does he or she learn to interact with a prospect or client? Even if he or she takes a Personal Selling course, it likely won't accommodate the intricacies of an insurance contract. It seems that at least some content-related sales instruction within the Insurance course would be important. In this paper, we introduce a simple exercise to introduce undergraduate finance students to the insurance sales process.

LITERATURE REVIEW

While there is no specific research on the use of sales presentations in a general insurance course, there is significant research on the impact of experiential learning and presentations on student development. In higher education, Pfeiffer and Jones (1981) point out that experiential learning takes place when a person engages in some activity, reflects on what happened in a critical manner, and develops useful insights from the analysis. To explain the benefit of experiential learning, Senge (1990) notes that students are said to remember only a fraction of what they hear but a majority of what they actively do. Hawtrey (2007) claims that experiential learning is becoming increasingly important to the evolving mission of universities.

Spencer and Eynde (1986) examine the effects of experiential learning on a macroeconomics class. They find that the approach breaks up a normal routine and allows students to think and participate in a different way than they would in a lecture, which can be a valuable addition to any course. Coleman (1976) finds that a combination of both classroom and experiential learning have complementary possibilities for enhancing the conditions for learning, but experiential learning is almost always more enjoyable for participants.

Experiential learning is implemented in many ways throughout college courses in order to further develop desired skills. Similarly, the use of presentations as a form of experiential learning has also been shown to have a significant impact on student development. Spencer and Angus (1998) suggest that presentation assignments are valuable in engaging student learning because they motivate students, encourage critical thinking, and offer multiple ways of demonstrating understanding. Labanca (2011) claims that oral presentations are pedagogically useful when there are many examples or subcategories for the topic at hand. Tucker and McCarthy (2001) propose that presentation skills pose a challenge for business students because of low feelings of confidence and high levels of apprehension. They demonstrate service learning as an effective pedagogy for increasing business students' confidence during presentations. Maes, Weldy, and Icenogle (1997) find that oral communication is the most important competency for college graduates entering the workplace. Their findings assert that oral presentation skills are important because they allow students to demonstrate higher levels of cognitive thinking and development. These would seem to be especially important outcomes in a student's major area of study.

Spencer and Eynde (1986) support this idea in concluding that experiential learning is easiest in subject areas where students have at least some degree of familiarity. How can this be applied with insurance? Collier (1967) offers one perspective in his claim that an effective course should focus on personal insurance principles, rather than business and commercial policies. While some may disagree, and courses will naturally vary in terms of specific lines, all can incorporate an understanding of the basic insurance sales process. As suggested by Dorfman (1990), an excellent undergraduate insurance course means taking advantage of the unique insurance transaction and using that to educate students broadly and encourage critical and ethical thinking.

But how? Given that experiential learning adds value, and presentations enhance student development, how can the insurance sales process be simulated in an undergraduate insurance course? The remainder of this paper offers one suggested approach.

SIMULATING THE SALES PROCESS

Setting up the simulation. The course referenced in this paper is a junior-level course and is required for all finance majors. The only pre-requisite is Personal Finance, which includes a brief introductory unit on risk management and insurance. The average class size is approximately 30. The sales simulation is conducted at the end of the semester just prior to final exams. A sample grading template is included as Appendix A.

Before introducing the exercise, it is important for the instructor to first establish a strong foundation of related content. Experential, or high-impact learning is most effective when used as a supplement to the underlying curriculum. In the case of insurance, the core material begins with a broad overview of insurance principles and contracts, and then continues with the specifics of individual lines.

As part of the class discussion on life insurance, we present a sample life insurance needs assessment. Calculators can be found online that provide an estimated death benefit required for an individual given projected survivor cash and ongoing income needs. Alternatively, professional financial planning software packages typically provide a more detailed analysis. We use financial planning software from Money Tree to generate reports for a husband and wife, and review the results in class.

A second piece of the simulation requires a discussion of a policy illustration. We use an example that combines a base cash value policy with a term rider for additional coverage. Sample policy illustrations can be found online and are also available from a local insurance agent. We first present the example during our coverage of life insurance.

A third element of the simulation requires an understanding of basic retirement projections. Our coverage of employee benefits in the class includes a discussion of retirement income needs. Students are asked to build a

worksheet in EXCEL that projects retirement and savings needs based on a list of variables and assumptions. A sample printout of the worksheet is included as Appendix B.

Conducting the exercise. Near the end of the semester, the instructor explains the exercise to the students. Each will be assigned a fifteen-minute timeslot with two other students during the last week of class. Each of the three students will have five minutes to present his/her assigned topic to a mock client (the instructor). However, students will not know their assigned topic before arriving and will therefore need to be prepared for all three illustrations.

Once students arrive for their presentation, they are randomly assigned one of the topics. Each student has 3-4 minutes to present the illustration, and the instructor asks 1 or 2 follow-up questions. The meeting occurs in a conference room, and students are expected to dress professionally, as if meeting with a real client.

Assessment. Students are graded equally on their professionalism, organization, content, questions, and time. Professionalism measures dress, demeanor, eye contact, and personal interaction with the mock client. Organization measures how the student approaches the illustration, and whether he/she provides an overview and summary. Content assesses the student's understanding of the detail within the illustration and whether an appropriate level of depth is communicated to the client. Questions are asked by the instructor to explore misstatements in the presentation or to press the student to go deeper.

The narrow time window is challenging for many students. Some have never had an experience that requires them to summarize fairly complex material in such a short timeframe. The challenge is further magnified because the illustrations require varying lengths of time to explain. Hurried students who draw the one-page retirement illustration may finish in under three minutes; those who attempt to cover every page of the policy illustration may run out of time. The time constraint is intended to force them to think in advance about what is most important, and how to structure their presentation in a way that is thorough but concise.

Pedagogical benefits. There are many benefits of the exercise for students. Perhaps the most obvious is the opportunity to practice their presentation skills in a unique scenario. While some may be experienced in front of powerpoint slides, fewer have had an opportunity to sit down across the table from a prospect or client. This experience helps to simulate a client meeting, and hopefully helps with some of the soft skills that are sometimes overlooked. It is particularly helpful as the students ponder the magnitude of a similar conversation with a real client. Telling someone they won't have enough money at retirement requires an understanding of the numbers, but also a measure of empathy and sensitivity in approaching a difficult conversation.

Additionally, the experience may help some students who are wrestling with future career plans. While some are natural salespeople and tend to shine through this exercise, others learn immediately that they would prefer to not be in a client-facing role. Either way, they benefit from the experience, and have a better understanding of professional sales, particularly in regards to insurance.

CONCLUSION

Increases in technological change have done little to decrease the importance of interpersonal skills for today's college graduate. The ability to organize information and communicate it in a clear way is a critical requirement for those beginning any new career. Those pursuing a future in insurance sales have a particular need for an understanding of the insurance sales process. We present a simple exercise that mimics an advisory experience with a client. The benefits to students are many, and the exercise enhances the core content obtained through a standard insurance course.

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Appendix A: Sample Grading Template

Principles of Insurance

Client Presentation Grading Template Name _____

1. Professionalism (10 points)
   Appearance, demeanor, eye contact, appropriate pace, put client at ease _____

2. Organization (10 points)
   Presentation followed a thoughtful, logical sequence that addressed client concerns _____

3. Content/Delivery (10 points)
   Appropriate explanation of key points and supporting information _____

4. Questions (10 points)
   Effectively and correctly answered client questions _____

5. Time (10 points)
   Stayed within 3-4 minute timeframe allocated for presentation _____

Appendix B: Retirement Calculations Worksheet

Year	Husband Age	Wife Age	Beginning Retirement Assets $150,000	Growth with Return of 7.0%	Annual Contributions $6,000 Increased by 3.0%	Expenses of $60,000 with 3.0% Inflation	Husband SS at 65 24,000 2.0% Inflation	Wife SS at 65 18,000 2.0% Inflation	Total Available Income During Retirement	Shortage Covered from Assets	Taxes on Assets for Shortage 20%	Ending Retirement Assets
2019	40	40	$150,000	$10,500	$6,000	$60,000	$0	$0	$0	$0	$0	$166,500
2020	41	41	166,500	11,655	6,180	61,800	0	0	0	0	0	184,335
2021	42	42	184,335	12,903	6,365	63,654	0	0	0	0	0	203,604
2022	43	43	203,604	14,252	6,556	65,564	0	0	0	0	0	224,412
2023	44	44	224,412	15,709	6,753	67,531	0	0	0	0	0	246,874
2024	45	45	246,874	17,281	6,956	69,556	0	0	0	0	0	271,111
2025	46	46	271,111	18,978	7,164	71,643	0	0	0	0	0	297,253
2026	47	47	297,253	20,808	7,379	73,792	0	0	0	0	0	325,440
2027	48	48	325,440	22,781	7,601	76,006	0	0	0	0	0	355,822
2028	49	49	355,822	24,908	7,829	78,286	0	0	0	0	0	388,558
2029	50	50	388,558	27,199	8,063	80,635	0	0	0	0	0	423,821
2030	51	51	423,821	29,667	8,305	83,054	0	0	0	0	0	461,793
2031	52	52	461,793	32,326	8,555	85,546	0	0	0	0	0	502,673
2032	53	53	502,673	35,187	8,811	88,112	0	0	0	0	0	546,672
2033	54	54	546,672	38,267	9,076	90,755	0	0	0	0	0	594,014
2034	55	55	594,014	41,581	9,348	93,478	0	0	0	0	0	644,943
2035	56	56	644,943	45,146	9,628	96,282	0	0	0	0	0	699,717
2036	57	57	699,717	48,980	9,917	99,171	0	0	0	0	0	758,615
2037	58	58	758,615	53,103	10,215	102,146	0	0	0	0	0	821,932
2038	59	59	821,932	57,535	10,521	105,210	0	0	0	0	0	889,989
2039	60	60	889,989	62,299	10,837	108,367	0	0	0	0	0	963,125
2040	61	61	963,125	67,419	11,162	111,618	0	0	0	0	0	1,041,705
2041	62	62	1,041,705	72,919	11,497	114,966	0	0	0	0	0	1,126,121
2042	63	63	1,126,121	78,828	11,842	118,415	0	0	0	0	0	1,216,791
2043	64	64	1,216,791	85,175	12,197	121,968	0	0	0	0	0	1,314,163
2044	65	65	1,314,163	91,991	0	125,627	24,000	18,000	42,000	(83,627)	(16,725)	1,305,803
2045	66	66	1,305,803	91,406	0	129,395	24,480	18,360	42,840	(86,555)	(17,311)	1,293,342
2046	67	67	1,293,342	90,534	0	133,277	24,970	18,727	43,697	(89,581)	(17,916)	1,276,379
2047	68	68	1,276,379	89,347	0	137,276	25,469	19,102	44,571	(92,705)	(18,541)	1,254,480
2048	69	69	1,254,480	87,814	0	141,394	25,978	19,484	45,462	(95,932)	(19,186)	1,227,176
2049	70	70	1,227,176	85,902	0	145,636	26,498	19,873	46,371	(99,264)	(19,853)	1,193,961
2050	71	71	1,193,961	83,577	0	150,005	27,028	20,271	47,299	(102,706)	(20,541)	1,154,291
2051	72	72	1,154,291	80,800	0	154,505	27,568	20,676	48,245	(106,260)	(21,252)	1,107,579
2052	73	73	1,107,579	77,531	0	159,140	28,120	21,090	49,210	(109,930)	(21,986)	1,053,193
2053	74	74	1,053,193	73,723	0	163,914	28,682	21,512	50,194	(113,720)	(22,744)	990,452
2054	75	75	990,452	69,332	0	168,832	29,256	21,942	51,198	(117,634)	(23,527)	918,623
2055	76	76	918,623	64,304	0	173,897	29,841	22,381	52,222	(121,675)	(24,335)	836,916
2056	77	77	836,916	58,584	0	179,114	30,438	22,828	53,266	(125,847)	(25,169)	744,483
2057	78	78	744,483	52,114	0	184,487	31,047	23,285	54,331	(130,156)	(26,031)	640,411
2058	79	79	640,411	44,829	0	190,022	31,667	23,751	55,418	(134,604)	(26,921)	523,715
2059	80	80	523,715	36,660	0	195,722	32,301	24,226	56,526	(139,196)	(27,839)	393,340
2060	81	81	393,340	27,534	0	201,594	32,947	24,710	57,657	(143,937)	(28,787)	248,150
2061	82	82	248,150	17,370	0	207,642	33,606	25,204	58,810	(148,832)	(29,766)	86,922
2062	83	83	86,922	6,085	0	213,871	34,278	25,708	59,986	(153,885)	(30,777)	(91,655)
2063	84	84	(91,655)	0	0	220,287	34,963	26,223	61,186	(159,101)	(31,820)	(282,576)
2064	85	85	(282,576)	0	0	226,896	35,663	26,747	62,410	(164,486)	(32,897)	(479,959)
2065	86	86	(479,959)	0	0	233,703	36,376	27,282	63,658	(170,045)	(34,009)	(684,013)
2066	87	87	(684,013)	0	0	240,714	37,104	27,828	64,931	(175,783)	(35,157)	(894,952)
2067	88	88	(894,952)	0	0	247,935	37,846	28,384	66,230	(181,705)	(36,341)	(1,112,998)
2068	89	89	(1,112,998)	0	0	255,373	38,602	28,952	67,554	(187,819)	(37,564)	(1,338,381)
2069	90	90	(1,338,381)	0	0	263,034	39,375	29,531	68,905	(194,129)	(38,826)	(1,571,335)
2070	91	91	(1,571,335)	0	0	270,925	40,162	30,122	70,284	(200,642)	(40,128)	(1,812,106)
2071	92	92	(1,812,106)	0	0	279,053	40,965	30,724	71,689	(207,364)	(41,473)	(2,060,942)
2072	93	93	(2,060,942)	0	0	287,425	41,785	31,338	73,123	(214,302)	(42,860)	(2,318,104)
2073	94	94	(2,318,104)	0	0	296,047	42,620	31,965	74,585	(221,462)	(44,292)	(2,583,859)
2074	95	95	(2,583,859)	0	0	304,929	43,473	32,605	76,077	(228,852)	(45,770)	(2,858,481)

Ensuring Learning Outcomes of Short-Term Travel Learning Communities: Best Practices and Lessons Learned from Faculty

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ABSTRACT

This paper outlines key success factors as they relate to learning communities that incorporate short-term travel. The authors share course design, learning goals, planning tips, and sample itineraries for the travel learning community at their college. Specific topics discussed include choosing a host country to ensure optimal cultural differences, choosing a host organization, and structuring an itinerary for engagement, reflection, developing flexibility, and pre-travel and post-travel assignments and activities to maximize effectiveness.

Keywords: Learning Community, Short-Term Travel, Cross-Cultural Aptitude

INTRODUCTION

This paper focuses on "learning communities" and specifically "travel learning communities," on benefits and best practices. We focus on their benefits, best practices, and lessons learned in structuring, organizing, and executing such learning communities to maximize student learning.

Learning communities are a classic instrument for advancing goals of a liberal arts education such as lifelong self-discovery, critical thinking, and analysis, and especially recognizing connections amongst divergent topics. Learning communities bring together faculty from two different disciplines, integrate their disciplines, and link them together through a seminar course. The traditional learning community ("LC") is comprised of three courses, all taken by a single cohort of students: two separate discipline courses linked by a third, integrative team-taught seminar.

A benefit of learning communities is that they help students make connections between seemingly unrelated course topics, and to help them recognize the interrelatedness of other courses and content (Lee, 2010; Visher, Wathington, Richburg-Hayes, & Schneider, 2008). The structure provides the opportunity for students to engage more thoroughly and intensely, from different perspectives, with the course content. Further, the cohort model causes the students to interact more frequently "socially and intellectually" with students taking the same courses and provides the opportunity to develop relationships with their faculty (Visher et al., 2008; Wathington, Pretlow & Mitchell, 2010). This creates better environment for learning and helps facilitate deeper and more integrative learning.

In this paper we discuss the philosophical foundations of a particular type of learning community (learning communities that include short-term travel), the purpose and structure of those learning communities, and best practices and lessons learned from nearly a decade of experience of running these LCs at Stonehill College. Stonehill is a private Catholic liberal arts college outside of Boston, Massachusetts, serving largely traditional aged college students. Learning communities at Stonehill are taught through a variety of departments across campus, including the six Business disciplines (Accounting, Finance, International Business, Management, Management Information Systems, and Marketing). The focus of this paper, the "Culture and Commerce" learning community, integrates Organizational Behavior (Management course) with International Business. The integrative seminar focuses on a particular country or region and integrates the material from the two separate classes.

SHORT-TERM TRAVEL LEARNING COMMUNITIES

Some learning communities incorporate travel either inside or outside of the United States as part the integrative component of the course ("travel LCs"). We created travel LCs because the capacity to interact effectively across cultures is a critical element in a liberal education, and we believe that this capacity cannot be learned by a traditionally aged undergraduate in the classroom. There is significant evidence that student learning outcomes are substantially improved by experiential learning compared to traditional classroom learning (Burch et al., 2019;

Stone & Petrick, 2013). This applies particularly to the development of cross-cultural aptitude (Lee, Gettman, & Swanson, 2013; Moon, Choi & Jung, 2012).

More specifically, it is evident from the research that even *short-term* travel student development of cross-cultural aptitude or global perspectives (Whatley et al., 2020; Sakurai, 2019; Tarrant & Lyons, 2011), including increasing students' understanding of their own and other cultures, and their ability to develop relationships across cultural differences (Tajes & Ortitz, 2010; Whatley et al., 2020). From a practical perspective, cross-cultural learning is increasingly important, and developing global perspective and the ability to understand and work across cultures are critical components for company success (Gupta & Govindarajan, 2002). Additionally, there is evidence that this type of travel may significantly affect personality or attitudinal factors important to effective leadership as well as successful cross-cultural endeavors (i.e., locus of control, Lee, Gettman, & Swanson, 2013). Therefore, to increase student cultural competencies, we incorporated travel with students as part of a structured learning experience.

THE STONEHILL "TRAVEL LC"

Our travel LC, called the "Culture and Commerce LC", has been running for ten years and has included travel to the Azores, Costa Rica, Cuba, Malta, Peru, Sicily, and Tunisia. The course is structured with two content courses (International Business and Organizational Behavior), along with the third integrative seminar course (Culture and Commerce) that met each week and included travel (typically over spring break or the end of the spring semester). All courses and the travel component of the learning community occurred in the same spring semester.

The two content courses are both multidisciplinary courses that deal with the interface of culture and organizations, the former from a micro-perspective and the latter from a macro- perspective. Both courses draw upon the disciplines of economics, psychology, management, sociology, and anthropology, and provide students with a context through which to understand behavior within and among organizations engaged in global commerce.

The work in the content courses focused on the country or region to which the travel LC was traveling that year. This provided some intrinsic interest in and greater engagement with the material and helped integrate classroom work with tangible travel experiences. These courses each had subject-matter-specific learning goals in addition to the goals of the overall learning community. The integrative course was dedicated to the overall learning community goals. These goals are discussed below.

Travel LC learning goals and course design. Our travel LC had several learning goals (separate from the specific goals of the component classes): developing cultural competencies, teamwork competencies, learning competencies (especially capacity for co-instructional learning), flexibility, and adaptability. Here we describe each goal and how the LC was structured towards advancing that goal.

Cultural competencies. A primary objective of the LC was to emphasize cross-cultural and global learning on the part of students through both academic study and direct experience with another culture, as discussed above. The cultural competencies we focus on include cultural sensitivity, understanding one's own and other cultures, and self-awareness of the impact of culture on one's perceptions and behavior. Developing cultural competencies is a personal and integrative type of learning; the rigorous structure of the LC, multiple joint classes combined with travel, provided the context necessary for that.

For this student population (traditional-aged students, largely from the northeastern region, who have had limited contact with individuals from other cultures), the travel component is crucial. It is designed to provide a shock sufficient to "unfreeze" students' thinking; to place students in the rich complexity of the problem context, while simultaneously isolating them from distractions of campus and the social norms of campus life. This provides the substrate and catalyst for unfreezing their conceptions about culture and allows new conceptions to be developed.

Teamwork competencies objective. The cohort model is particularly well suited for courses with a team component. It provides a much more robust opportunity for team formation and development, which also provides motivation through accountability to each other and to the faculty (Dayton, Koster, Prenkert & Ridlon, 2018; Tuckman & Jensen, 1977**).**

Since students are engaged in team activities intensively and over an extended period, the LC also uses teams as vehicles for better understanding group process, team formation, and characteristics and behavior of effective

teams/team members. Students are expected to create well-organized and effective work teams that engage in research and facilitate the learning of their peers. In performing these activities, students use their team as a laboratory for applying the concepts of both Organizational Behavior and International Business. The travel component adds to this, putting the teams in novel and challenging circumstances, providing an avenue for the acceleration of learning about teams and developing teamwork skills.

Learning competencies objective (capacity for co-instructional learning). We sought to develop the capacity for co-instructional learning in our students, both as individuals and as a group. Co-instructional learning involves students feeling collective and individual ownership of the learning process, accepting learning as a worthwhile process, and viewing learning as an active process in which everyone participates. Because a community of learners such as this takes many weeks to develop, and because the travel portion is somewhat short, pre-travel assignments and in-class activities are explicitly designed to develop student individual and group capacity for active, co-instructional learning. This positions students to best take advantage of the experiential portion of learning.

The structured travel itself also helps forge a community of learners where learning-supportive norms can be created. An additional benefit is that it physically shifts faculty into co-learners, where they can model learning orientated behaviors and attitudes.

Flexibility & Adaptability. Another significant learning goal of the LC is the development or enhancement of critical leadership skills. To navigate the increasingly complex workplace, being flexible and adaptive are essential and desirable leadership traits to possess (Yukl & Mahsud, 2010). This includes the ability to handle uncertain situations, and even be comfortable in them. Tolerance for ambiguity ("the tendency to perceive ambiguous situations as desirable," Budner, 1962, p. 29) has been found to increase after short-term travel in traditionally aged undergraduates (Lee, Gettman, & Swanson, 2013). This is not surprising as travel to another culture, especially a culture very different from the home country, would require students to be more flexible, adaptable, and able to embrace ambiguous situations.

KEY SUCCESS FACTORS AND LESSONS LEARNED: STRUCTURING THE COURSE AND TRAVEL TO MAXIMIZE STUDENT LEARNING

A travel LC can be very challenging to plan and implement successfully. There are innumerable pedagogical and logistical issues to consider and plan for. In this section we discuss some key factors leading to our travel LC success, and provide lessons we have learned along the way.

We think of travel LC success factors in three general categories: basic planning (e.g., where to go, how to get there, where to stay, etc.), contingency planning (e.g., planning for the unplanned, from the inconvenient to the emergency), and structuring to maximize student learning and growth. While there is some overlap in these categories (e.g., basic planning of choice of host country can have profound impact on learning), they are a useful way to think about planning and implementing a travel LC.

Additionally, some of aspects of planning are essentially "hygiene" factors: They are effectively infrastructure necessary for the trip to function. While their absence could lead to disaster, beyond that, they do not contribute to learning. Other factors directly and positively affect successful learning. Our focus here is on the success factors that lead to student learning. However, we have included a compilation of some of our best practices and recommendations as an appendix (see Appendix A).

Choosing host country to ensure meaningful and manageable cultural differences. Selecting the optimal travel LC destination is a multi-faceted decision, including faculty interests and connections, the current economic or political situation in the host country, and its match to course learning objectives (i.e., how well the opportunities for experiences available in that country, as well as the country's culture, line up with course learning objectives.) Most obviously, matching the course learning objectives includes providing exposure to, and the opportunity for, learning content relevant material. For example, a course with heavy emphasis on the economics of the EU would be well served if traveling to the EU.

As is the case with most short-term travel courses, the development of cultural competencies is one of the primary learning objectives, the success of which is impacted by the choice of host country. For short-term travel to influence the development of students' cultural competencies, the country needs to be meaningfully and noticeably

different from the home country on elements such as culture, language, level of development, type of government, dominant religion(s), and so forth. Additionally, navigating cultural differences requires students to be flexible and adaptive, furthering that goal. However, there is a balance that must be struck. The country needs to be different enough that students are put in uncomfortable and challenging situations that "unfreeze" their way of thinking (e.g., American students going to the U.K. is too similar for this to occur) but not so different that the students are overwhelmed and cannot adjust in the short duration of the travel. The balance may vary depending on the nature of the student population (e.g., a homogeneous largely regional institution vs. very diverse international institution) and the home country of the students.

To this end, coming from the highly monochronic United States, we have typically chosen polychronic cultures (e.g., Peru, Costa Rica). The differences around schedules and time, manifest themselves in tangible ways, even during a short trip. Furthermore, where possible, we have attempted to choose countries that are either of a different dominant religion (e.g., Tunisia, an Islamic country) or have a very different economic system (e.g., Cuba).

A fortuitous finding was that the use of personal technology in most of these countries was quite different from what the students were used to. This was due to lack of infrastructure and cultural norms of the country. For example, in the Azores, Internet is easily accessible, but students learned that they were often the only ones in public places using their phones and felt compelled to curtail their use of their phones. Cuba's Internet infrastructure is very limited, costly to use, and highly controlled. Access is limited to scattered Wi-Fi hotspots and wireless data is virtually unheard of. This meant that it was impossible for students to constantly use their smartphone for anything other than photography. The forced change in technology usage is a difference that students feel immediately and acutely. Choosing a country with limited technological infrastructure is an excellent way to break students from their technological security blanket and help them focus on the experience itself.

Faculty often default to locations familiar to them, where there is a comfort level and base knowledge that makes the planning process easier. Specifically, contacts allow easier access to universities, governmental and non-governmental agencies, and private companies. However, there is a pedagogical benefit to the faculty choosing a country outside their own zone of comfort. It is entirely a different dynamic when faculty are learning along with the students. It provides them an opportunity to model flexibility, resilience, and active learning, helping to foster a culture and community of learners. It can be a very powerful experience for faculty and can create a closer bond with students. Of course, the appropriate balance between less onerous logistical planning and these learning opportunities is something faculty must determine based on their own circumstances, but it is important to recognize that the trade-off exists.

For example, Malta was our first travel LC location because one of the faculty leaders had valuable contacts that allowed us to secure site visits to universities and private companies. This location fit our subject matter objectives as International Business course had a significant module on the European Union. However, because of the proximity and shared cultural roots, we were able to add Tunisia as a companion country, allowing us to push our students farther out of their cultural comfort zone by visiting an Islamic country. Furthermore, it was a country with which the faculty were largely unfamiliar, allowing for a shared learning experience with the students.

Regardless of how the location is chosen, we do recommend changing the country location every two years. This prevents students from getting preconceptions about the host country or trip through conversations with previous students in the LC. It also avoids the perception that the path is well worn and the expectation that everything will go smoothly, both of which dilute the perceived challenge and the learning experience.

Choosing host organization and structuring itinerary for engagement, reflection and developing flexibility. Creating an itinerary is critical to the success of the trip, both from logistical and learning standpoints. (Please see Appendix A for important basic planning and contingency planning aspects of creating a successful itinerary). To provide optimal learning opportunities, the itinerary for the trip should meet several goals.

1. Provide opportunities for engagement with local community, both in structured and non-structured situations.
2. Provide opportunities for individual and community reflection, both necessary for developing capacity for co-instructional learning.
3. Create circumstances the require students to be flexible and adaptable and provide opportunities for faculty to model flexibility and adaptability.

4. Provide experiences that are relevant to the subject-matter-specific courses of the LC (e.g., economics of the EU, sustainable agriculture in South America).

Working with a reputable local host country organization partner is critical to successfully structuring an itinerary - from basic logistical to a learning perspective. In addition to being helpful in securing adequate lodging and facilitating in-country travel, the host country organization is instrumental in crafting a rich itinerary that provides activities that would be difficult to plan on your own without special contacts. This might include visits to private companies, government buildings, etc. It is important to ensure that the host country organization will allow itinerary flexibility virtually up until the time of travel to allow student input into the planning process. Further, the host country organization partner acts as the key point of contact during the travel portion of the LC.

To find a good host country organization, we recommend reaching out to professors at academic institutions in the host country. This has been key to our finding organizations that understand the travel LC mission, and have the contacts and experience to incorporate company visits, university lectures, and other activities that are not typical of tourist travel. For example, we partnered with the University of Georgia in Costa Rica and benefited from their access to their mountainous ecolodge, research station, and a dedicated staff. Best practices have found that selecting a host country organization a minimum of a full academic year prior to the semester of travel. This allows sufficient time to plan many of the details of the trip as well as the budget. Most host country organizations will provide suggestions for activities. Some may even provide sample itineraries if they have worked with similar groups in the past. Equipped with a list of suggestions, the faculty and students can work together to craft the itinerary that best meets the learning goals of the LC.

Using the itinerary to cultivate flexibility/adaptability. As discussed above, part of choosing a host country is ensuring that its culture is sufficiently different from our home culture. In service to our objective of developing flexibility, the countries we have visited have predominantly been polychronic (the United States is strongly monochronic, Hall & Hall, 1990**)**, where time and schedules are viewed as more fluid, and schedules and plans change often. This creates an imperative to build flexibility into itineraries and provides another learning opportunity for students.

We recommend bringing students into the process of creating the itinerary as early as possible, especially into revising the itinerary as plans change (which in polychronic cultures they do often, and sometimes at the very last minute). As a result, even prior to travel, the students must learn to adapt, at least their expectations. Having some early practice and "success" in dealing with ambiguity serves to develop their self-efficacy around handling the unexpected, thus increasing their chance for successful handling change while on travel (Bandura, 1977; Milstein, 2005). Furthermore, the experience of students working in real time with their faculty as they struggle with this cultural difference, is a valuable part of students viewing faculty as co-learners.

Student engagement during travel. When developing the itinerary, it is important to include as much cultural immersion as possible, crafting activities that lead to meaningful student interactions with the culture and local citizenry. Here the host country organization can provide useful guidance (as can your regional academic contacts). In conceptualizing an itinerary, we take several approaches to ensure that students engage with the people of the host country.

Structured, formal opportunities. First, we structure formal opportunities for engagement. Some of the components of the itinerary that encourage engagement are culture-specific instruction by local faculty, visits to business, cultural and government sites facilitated by resident experts, docents, and indigenous managers. For each planned activity, be intentional about facilitating connections to the culture and incorporate cooperative learning when possible. Our itineraries always include visits to museums and sites of historical significance (e.g., catacomb and cathedral visits, walking tours, exploration of ruins), tours and talks at private businesses, visits to local marketplaces, university lectures and discussions, and visits to, and discussions with, local governmental and non-governmental organizations. We have met with company CEOs, ambassadors, government officials, economists, university scholars, local community leaders, farmers, and citizens. Each of these have provided a unique perspective of the country and many were organized by our host country organization.

Structured, informal opportunities. Second, in addition to the more formal parts of the itinerary, we structure opportunities for students to interact in less formal contexts and in less prescribed ways with locals and indigenous people. We have had cooking classes at local homes, visits to weaving and craft cooperatives and traditional

villages, sustainable farm tours, fair trade coffee and tea plantation visits, attended local religious services, and other activities that maximized close interactions with locals. These types of interactions seem to have left some of the strongest impressions on students. For example, students reported that their most memorable experience from our travels to Cuba was attending a dance organized by a local Havana neighborhood women's group where students were taught the culturally relevant dances (e.g., Salsa, Mambo).

Increased student control and autonomy. Third, it is important to give students some control over the itinerary and to allow time for them to socialize and explore more freely. To this end we have students choose restaurants or optional activities where possible, and to lead portions of the itinerary. In addition to increasing engagement, this allows students greater ownership over their learning experience, thus furthering development of collective co-instructional learning abilities, as well as individual learning competencies. Towards the end of the visit when students are more comfortable and confident in their surroundings, we build in blocks of unstructured free time into the itinerary. This allows students to experience the culture on their own in smaller groups and interact with country peers in their own way. We often hear how powerful these unstructured interactions are in students' final reflection papers. For example, while in Cuba, students went to an outdoor concert (one of the first times an American rock band had performed in Cuba). They were befriended by a group of Cuban students, and they discussed the Cuban students' perspectives of the United States and Americans, which was extremely eye opening for our students. While in the Azores, a group of students had dinner with a local family that had relatives who had just moved to the United States.

Student Reflection During Travel. Finally, building in opportunities for informal, real time reflection throughout the entire LC is a critical success factor. While reflection is built in heavily to the formal assignments (both pre- and post-travel), it is important to build in opportunities for reflection throughout the trip. We include a welcome talk and chance to reflect on first impressions of the country on the first travel day, debriefings at the end of each travel day to discuss observations and reflect on the activities that day, encourage discussions on reflections during group meals, and share final reflections during the farewell dinner. See Appendix B for sample itineraries.

Grade conduct and engagement during travel. Prior to travel, substantial time was spent discussing the importance and impact of conduct and engagement during the trip. There were significant pre-travel discussions of the importance of being cognizant and respectful of professional and cultural contexts, not just for impression management, but because the ability to take the perspective of someone different from oneself is a key component of developing cultural awareness and sensitivity. We also emphasized how fully engaging in the cultural experiences while traveling a major component to learning. We also made it very clear that the students must all follow the laws of the host country. Students are often surprised what is illegal in the countries to which they travel. To stress its importance, conduct and engagement *during travel* were explicitly part of students' grade.

KEY SUCCESS FACTORS: PRE-TRAVEL ASSIGNMENTS AND ACTIVITIES

Creating a community of learners prior to travel. As discussed above, we believe it important, especially with a population of traditional-aged college students with limited exposure to other cultures, to structure the course and travel in a way to "unfreeze" their thinking about culture. To do this, students must be prepared for, and open to, the challenges of this type of learning. Therefore, it is important to create a supportive learning environment and a platform for the development of a community of learners and co-instructors.

As mentioned above, developing co-instructional capability and a supportive community of learners takes time to develop. Because the travel portion is somewhat short, students need to develop some capacity for active learning and co-instructional behaviors prior to travel. Therefore, pre-travel assignments and in-class activities are intentionally designed to meet that end.

Pre-travel oral team presentations. Early in the semester, students were formed into four teams which were each required to select and research their choice of topic in preparation for the trip. The team research effort culminated in a briefing made to the other teams prior to travel. Teams were instructed to model their presentation after the research a businessperson would conduct prior to a business-related visit to a new country and culture. Students have selected topics such as the joining of the European Union (Malta), ecotourism (Costa Rica), sustainability and fair-trade tea and coffee (Peru), religion's impact on businesses (Tunisia), impact of embargo on businesses (Cuba), history and culture (the Azores), industries and tourism (Sicily).

These team presentations were intended to help develop teamwork capabilities, as well as knowledge of the other culture through self-directed active learning. They also developed expectations of peer-instruction and increase co-instructional capacity. While a team presentation is not the only way to accomplish these goals, it fits the triple purpose of actively engaging in some depth with aspects of the host country's culture, experiencing team formation and developing teamwork skills, and laying the groundwork for developing a community of learners.

Adaptability and setting student expectations: Normalizing the unexpected. We prepared our students in advance for some of the specific rigors of travel and of traveling in another culture that they would face. We did this in order to help build the cognitive framing for them to respond in an adaptive fashion, rather than potentially being overwhelmed and reacting negatively to those challenges (Bandura, 1977; Milstein, 2005; Numonde, 2012). To this end, setting realistic expectations about the need to be personally and practically flexible, that people will not all behave as you expect and that plans will likely have to change while traveling is paramount. Not only does this help students develop flexibility, but it also establishes a norm that everyone is adapting and learning together. We approached this in several ways.

"Experts" visit class. Before travel we invited several country experts to discuss aspects of the country/culture (e.g., country experts such as state senators and their staff, Fulbright scholars, Stonehill country experts, and community leaders from the country we were visiting). While these experts typically contributed subject matter information, they also spoke candidly about what challenges the students might experience in that country resulting from aspects ranging from economic and infrastructure differences to cultural differences (especially the seeming lack of predictability and timeliness in polychronic cultures).

In addition, we brought in students from the prior year's travel LC class, to discuss their experiences, especially those that required adaptation and flexibility on their part. Finally, in our predeparture training workshop conducted by our Office of International Programs, students engage in role play about the essentials of navigating cultural differences (e.g., how to communicate effectively in a high-context culture). All of this gives students more realistic expectations of travel and helps prepare them for what for many, is the unfamiliar task of adapting to changing and unfamiliar circumstances.

Co-create itinerary. As discussed above, students were involved in some aspects of creating the itinerary during the semester. Through this process they became aware that flexibility has been intentionally built into the schedule to account for cultural differences around time. They were privy and part of the many changes that inevitably occur throughout the semester, right up to and during travel. As discussed above, this provides some guided practice in, and a framework for, handling unpredictable events. This helps develop students' self-efficacy and increases their likelihood of adapting successfully to ambiguous or changing situations while traveling (Bandura, 1977; Milstein, 2005; Numonde, 2012).

Explicit discussions of cultural differences. Additionally, there was substantial focus in both Organizational Behavior and International Business on the major cultural differences between the United States and the host country's general region (e.g., EU, Latin America), and how those differences manifested in how business is done, interpersonal interactions, social expectations, and so on. In the integrative course, the discussion became much more specific to the specific host country. In addition to setting expectations, basic knowledge acquisition of cultural differences is a critical part of understanding other cultures as well as one's own culture, which is part of our cultural competency objective.

KEY SUCCESS FACTORS: POST-TRAVEL ASSIGNMENTS AND ACTIVITIES

Creation of a class video: Group reflection, reinforcing cultural competencies and solidifying community of learners. Reflection is a critical part of experiential learning and learning from short-term travel (Burch et al., 2019; Whatley et al., 2020). In line with this we think formal reflection post-travel is key in solidifying the integrative personal learning of developing cultural competencies. To this end, after returning from the trip, we required our class to create, as a team project, a video that can "show others what you learned through your travel." This assignment facilitates learning in a couple of ways.

First, it encourages a focus on what is being learned while on the trip. Before the class travels, teams are instructed to seek examples relating deliberately and actively to their topic and to act as recorders, keeping a learning journal and taking photos and brief videos concerning their topic of focus. Upon return, the assignment provides a

mechanism for the collective articulation of learning outcomes from the travel experience: they are not creating a travelogue, but a reflection on how the travel component of the course facilitated student learning about culture. This exercise serves another purpose. In addition to providing structured reflection for the purposes of deep learning, it provides another opportunity for them to work in a (now larger) group to get things done.

Final course review and self-evaluation/reflection paper (individual reflection). In place of a final exam, students are required to write a 10-15-page paper examining their team's experience over the course and describing what they learned using theories from the two subject-matter-specific courses, Organizational Behavior, and International Business. This requires students to reflect on the teamwork component of the experience, helps students apply course concepts to what they experienced in real time during the semester (e.g., recognizing where and how Tuckman's "stages of team formation" occurred in their team, and the impact those processes on team effectiveness) and to internalize those concepts, experiences, and lessons they learned from them. For teams that did not function particularly well, being able to pinpoint problems based on theories from class can be especially impactful.

Based on comments from students in their reflections, it is rather easy to tell if the learning goals of the LC were met. Below are quotes from students who participated in our Azores LC. The learning goals of this LC were developing 1.) cultural competencies, 2.) teamwork competencies, 3.) learning competencies, and 4.) flexibility and adaptability.

"Our group had become enlightened to this new way of thinking about sharing our culture. The group came together [not] for the purpose of gaining the insight to see past the words of a book, [but] instead, to indulge in the experience that a culture and society could provide." (Competency 1)

"There are significant moments in your life where you receive a sense of accomplishment, a feeling as if you gained valuable information and knowledge that you would never acquire in your lifetime. I experienced one of these moments in the Economy and Business Practices of the Azores Learning Community, where my awareness of different cultures and customs significantly expanded, opening my eyes to norms and standards that I was unaware of before this trip." (Competency 1)

"Although the trip was only ten days, our class faced different challenges that we quickly overcame. By utilizing Tuckman's five stage theory of group development, we were able to promptly conquer our differences and [join] as a group, forming a bond that preceded an incredible class trip." (Competency 2)

"We presented the content that we had studied to the rest of the class just as all the other groups did. Each presentation was meant to inform us a little more about the different traits the islands held and how they came to be. We were informed that regardless of how much research we did there was always going to be a gap in the knowledge we would get from books and articles verse the experience gained from physically being present within the country." (Competency 3)

"Although I experienced culture shock and faced challenging aspects of the trip, those moments were crucial as they allowed me to mature, venture outside of my comfort zone, and partake in an incredible experience." (Competency 4)

There are many other effective methods for structuring individual reflection discussed in the literature (e.g., journals, storytelling, structured writing exercises such as this one; Whatley et al., 2020). There are also complementary informal methods of reflection, such as our practice of scheduling daily debrief sessions during the trip.

CONCLUSION

Travel learning communities can be enriching for students and faculty alike. The overall goal of most educators is to meaningfully engage their students and provide the opportunity to develop lifelong skills and competencies. As discussed in this article, student learning goals such as developing cross-cultural competencies, teamwork capabilities, co-instructional learning skills, and the ability to be flexible and adaptable across situations can be achieved through this teaching model. These skills will serve students well when they enter the workforce and benefit the organizations that ultimately employ them. Carefully selecting both the host country and host

organization along with designing the itinerary are crucial elements to ensure the success of the travel learning community. The key success factors and lessons learned can help faculty develop and tailor their own travel learning communities. Although this course model was created and implemented in a small, private college, it can be used effectively across different types of schools. In addition, the assignments and activities presented can be easily modified for success.

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APPENDIX A

Part 1: Planning & Logistical Considerations

Planning for the Unexpected:

- Formalizing contracts with host country organization is important. Be sure to include home institution general counsel in drafting and signing travel contracts to safeguard the college and to minimize risk/liability.
- Continuously monitor host country for any major political/economic changes or government travel advisories (students can be brought into this process to help track current events in the host country).
- Have a "back up" contingency host country, and secure organizational contacts there. In the event of unplanned occurrences or crises in the host country (e.g., revolution/political unrest, health emergency), it is helpful to have some preliminary groundwork laid at an alternative destination. If unused, these contacts can be utilized for future travel.
- Emergency planning and insurance:
    - Decide on the latest date a student can cancel their participation in the trip. If student cancel last minute, they may be accountable for trip costs, regardless. This is another reason to purchase travel insurance when booking.
    - Plans should be made for emergency events such as terrorism, political upheaval, or a fast-moving pandemic, including evacuation and communication plans as well as contacts in the U.S. embassy. Security/Evacuation Insurance for such emergencies is available. Discuss this with your home institution general counsel.
    - Plans should be made for personal emergencies during travel such as student illnesses/injury, arrest, etc. The host country organization can be instrumental in crafting a plan of action for emergency situations, including information about nearest medical facilities, provide local legal or government contacts, etc.

Logistical Planning:

- Booking, Lodging & Transportation
    - Decide who will book flights, hotels/hostels, etc. Some host country organizations will handle all of this for you. In some cases, it may be the home institution's responsibility.
    - Determine who will share lodging and send roommate list to hotel/hostel, etc. so that rooms and keys will be ready when you arrive.
    - Determine transportation from home institution to airport (e.g., coach bus, carpool, etc.).
    - Decide how your group will travel from activity to activity while in host country (e.g., dedicated coach buses have been worth the extra expense for our travel).
    - Plan what type of guide you want with you during each day of travel (e.g., we found having a bilingual tour guides each day works well).
- Paperwork
    - Ensure all students and faculty have passports that will not expire until after returning from host country. Be aware that travel visas are required in some countries.
    - Have students complete any home institution paperwork such as emergency contact forms, health forms, code of conduct, etc.
    - Provide students with a list of any vaccinations or pre-medicating that they must complete prior to travel.
- Packing
    - Ensure all students and faculty have essential prescription and non-prescription medications for the duration of the trip, plus another 4-5 days. All medications should be in their original bottles. Some customs will not allow unlabeled medications. Do not expect host country to sell commonly available medications.
    - Create a detailed packing list for all travelers. Do not assume everyone knows how to pack for an international trip. This will vary based on climate, availability of stores, duration of trip etc.)
- Safety: Create and communicate clear safety protocols for students. For example:
    - No solo travel in country, require buddy system.
    - Safety of water supple (whether water is potable, and if not, how to acquire clean drinking water), as well as food to avoid eating.

    - Protection of belongings (avoid bringing expensive items how to carry money, using hotel safes/security boxes, etc.)
- Communication: Create and communicate communication policies with students and families.
    - Set up method and expectations for communication with students while faculty and TAs are not with them (if possible, group text or other communication tool).
    - Create communication plans and expectations for families. For example:
        - Send daily updates via email
        - Post to a daily blog
        - Work with your marketing/PR department to post student journal entries
    - Provide families with itineraries and emergency contact information.

Upon Arrival:

- Visit currency exchange (usually available at airport) and ensure all students and faculty have enough cash. The amount required depends on the country. For example, many European countries are primarily cash only.
- Locate medical facilities such as hospitals and urgent care centers. This information should be available at most hotels.
- Review safety protocols, including the water/food safety, protecting belongings (they should be told not to bring valuables), not travelling alone when not with group, etc.
- Arrange for water supply. Due to lack of availability of potable water in some places, we often go to a store on the first day and buy cases of water for students, or there is a risk of students dehydrating.

Part 2: Creating and Managing Travel Budget

Before Travel:

- Create an initial budget. Ideally, it should be determined *nine months* in advance to accurately quote cost of the trip to students before registration.
- Create detailed budget with input from host country organization. Detailed budget should include:
    - all intra-country travels
    - lodging
    - speaker stipends
    - tours and guides
    - costs for faculty and TAs (if to be included)
    - explicit list of what's NOT included (e.g., gratuities, meals, etc.)
    - contingency cushion of 10-15% to absorb unanticipated travel costs, emergencies, unexpected currency fluctuations, and so on
    - insurance (cancellation insurance, medical insurance with evacuation coverage)
- Determine breakeven point (number of students necessary to cover costs; for our trips this has been 15 – 20 students)
- Student Cost
    - Determine if cost of trip can be billed to tuition so financial aid can apply
    - Determine if your home institution has any student funds for travel or if you plan to apply for external grant funding and/or fundraise
- Monitor currency exchange rates, determine host country use of credit cards, availability of ATMs and places to convert monies into local currency, etc.
- Determine how much cash to bring and in what currency (you can order host country currency from most banks)
    - Students should bring their own spending money. However, there should be a general cash advance for the trip (usually held and managed by faculty)

During Travel:

- Designate one faculty member to manage finances during travel (keep detailed logs of use of cash, receipts, etc.). If your home institution provided a cash advance, they will want detailed accounting.
- Use credit card where possible for ease of recordkeeping.
- Obtain receipts for everything.

APPENDIX B
SAMPLE ITINERARIES

Itinerary for LC 269 Culture and Commerce in the Azores
Spring 2018
Program Cost $2850
(Covers airfare, ground transportation, lodging, entrances, and most meals)

Day	**Activity**
Thurs, 1 Mar	17:30 depart Stonehill via coach for Logan Airport SATA flight SP 280 to PDL arriving 06:00 on 2 March
Fri, 2 Mar	Coach to Hotel Marina Atlantico; check in, breakfast in hotel, freshen up. 10:00 Welcome lecture: Possible topics could be business/economic climate & challenges; culture of the Azores and its effect on business operations; gender issues in business Lunch in hotel & walking tour of Ponta Delgada Dinner at hotel
Sat, 3 Mar	Breakfast at hotel All day coach tour: Lagoa do Fogo, Ribeira Grande, Tea Plantation, Furnas. Lunch at Furnas (Tony's), swim at Terra Nostra Gardens Return to hotel, Dinner at Restaurant Marinero
Sun, 4 Mar	Breakfast at hotel Mass & service project. (lunch not included) Dinner at Talisma Restaurant
Mon, 5 Mar	Breakfast at hotel Check out & coach to airport for flight to Faial SP 576 10:30 arrive Horta 11:30, transfer to Hotel Canal, check in & lunch, tour of area, dinner at hotel
Tues, 6 Mar	Breakfast at hotel All day coach tour of Faial, including lunch and dinner at hotel.
Wed, 7 Mar	Breakfast at hotel, ferry to Pico All day tour of Pico including lunch & dinner Return to Faial for dinner at Hotel Canal
Thurs, 8 Mar	Breakfast at hotel; check out Transfer to airport, SP 483 departs 12:50 arrives Terceira 13:25. Check into Hotel Terceira Mar, lunch & dinner at hotel
Fri, 9 Mar	Breakfast in hotel; Guided tour of Terceira, including lunch and dinner at hotel
Sat, 10 Mar	Walking tour of Angra do Heroismo, a World Heritage Site, lunch on your own. Final group dinner celebration at Hotel
Sun, 11 Mar	Transfer to airport, SP 471 & 221; depart Terceira 11:35, stop & transfer at PDL, arrive BOS 18:05, bus to campus arriving about 20:30.

Note: Most meals are included in program cost, but meals while traveling to and from The Azores, and two lunches are not included as part of the program design so that you can explore the Azorean culture and cuisine (in groups) on your own.

Itinerary for LC 340 Economy and Business Practices of Cuba
Spring 2017
Program Cost $4500
(Covers airfare, ground transportation, lodging, entrances, and most meals)

Day	**Activity**
Thurs, 2 Mar	**03:30** depart Stonehill via coach for Logan Airport; United 343 departs 06:36 arrives 08:08 in Newark; United 1502 departs 10:18 arrives 13:53 in Havana; coach tour of Havana and transfer to Hotel Comodoro, Ave 3ra Y Calle 84, Ciudad De La Habana, tel. 011 53 7 2045551 Dinner & group meeting
Fri, 3 Mar	Breakfast at hotel Guided walking tour of Havana: Maqueta de La Habana Vieja, Old Havana; Cathedral Square; Square of Arms; San Francisco Square, Plaza Vieja Lunch at **El Templete Restaurant** Visit Headquarters of the Federation of Cuban Women (FMC) & meet with representatives Dinner at Restaurante La Paella Meet with members of the Community for the Defense of the Revolution (CDR)
Sat, 4 Mar	Breakfast at hotel Visit Callejón de Hamel to see artwork of Salvador González; visit Asociación Cultural Yorba de Cuba to see Santeria exhibit. **Lunch on your own** (in groups) & afternoon at Santa María beach Dinner at hotel
Sun, 5 Mar	Breakfast at hotel Visit Iglesia Santa Barbara in Párraga neighborhood & attend Mass. Visit Proyecto Ed Divino, a model farm with two community projects supported by the proceeds of a restaurant. Provides lunch & activities daily to about 20 local elders & classes on ecology, environment, and good citizenship to local youth (8-11 years). We will have lunch there and volunteer with their projects for the afternoon. **Dinner on your own** (in groups)
Mon, 6 Mar	Breakfast at hotel Presentation at Hotel Florida by **Professor Camilo García López Trigo** on "Overview of Cuba Education System" Lunch at Santo Angel Restaurant Visit CENESEX, The Cuban National Center for Sexual Education, meet staff & discuss gender issues in Cuba Return to hotel & change for dinner Dinner at Restaurant **Cuba 54**
Tues, 7 Mar	Breakfast at hotel In hotel, presentation by **Dr. Alberto Faya** on "Overview of Cuba's economy and changes taking place in Cuba"; visit Escuela taller Gaspar García de Jovellanos, school for restoring historical buildings, paintings, etc.; visit UBPC Vivero Organóponico Alamar, urban organic collective farm. Lunch at Restaurant El Ajiaco & discussion with owners about their private business; visit Colijmar fishing villiage; visit Finca Vigía, residence of Ernest Hemingway for 21 years. **Dinner on you own** (in groups)

Wed, 8 Mar	Early breakfast & checkout Depart for Trinidad City, stopping on the way at a crocodile breeding farm Visit Bay of Pigs & museum Lunch at Palacio Valle Coach tour of city of Cienfuegos Travel to Trinidad & stay at **Hotel Costasur** Dinner at hotel
Thurs, 9 Mar	Breakfast at hotel Walking tour of Trinidad; visit a family run pottery factory Visit Valle de los Ingenios, site of historic sugar mills Lunch at hotel Afternoon free to explore Dinner at hotel
Fri, 10 Mar	Breakfast in hotel; check out & depart by coach. Visit Topes de Collantes in the Escambray Mountains; visit Hacienda Codina, a Spanish coffee plantation; lunch at Hacienda Codina Travel to Havana & check in at **Hotel Comodoro** Final group dinner celebration
Sat, 11 Mar	Breakfast at hotel, coach to airport; United 1507 departs 14:53 arrives 16:43 in Houston; United 1953 departs 19:30 arrives Boston 00:25. Return to Stonehill College by coach about 01:30 Sunday.

Notes:

1. Most meals are included in program cost, but meals while traveling to and from Cuba are not. In addition, one lunch and two dinners are not included as part of the program design so that you can explore the Cuban culture and cuisine (in groups) on your own.

This is a 'dry' program. The use of any alcohol (or drugs) at any time will result in failure and an immediate trip home at your expense.

Innovation in Virtual Team Business Education: Ways to Increase Trust and Cohesiveness

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ABSTRACT

The study used a sample of students from Europe (Belgium), Brazil, China, and the US to investigate the determinants of team cohesiveness for virtual teams working on projects for actual clients. All projects were designed in the same way, according to the principles of collaborative experiential learning, and offered an environment that enabled building trust and fostering cohesiveness. Survey data on cultural intelligence, knowledge sharing, trust and team cohesiveness were collected at the end of the virtual work and before the team presentations. The study focused on the metacognitive component of cultural intelligence and unit grouping trust, defined as the trust members have a common goal for the project. Structural equation modelling results showed that group cohesiveness is predicted by team trust and knowledge sharing. Implications for the development of innovative course curriculum in international business taught virtually are discussed.

Keywords: virtual team, cohesiveness, cognitive team trust, metacognitive cultural intelligence, knowledge sharing

INTRODUCTION

A distinguishing feature of this century is the incidence and ubiquity of virtual collaboration. Virtual teams represent individuals who work interdependently across time, space and organization boundaries (Hambley et al., 2007), using information and telecommunication technologies to achieve common goals. Dulebohn and Hoch (2017) attributed the popularity of virtual teamwork to the availability of collaboration technologies, world-wide distribution of talent and expertise, increased need for efficiency, and importance of effectiveness and performance in a competitive business environment.

Developing effective teamwork relationships and building team cohesiveness are more challenging in virtual teams that have members with different cultural backgrounds living all over the world than in culturally-homogeneous teams that operate in the same location. Establishing high-quality relationships depends on the willingness of virtual team members to share knowledge with teammates, multicultural competence, and a repertoire of behavioral skills that includes encouraging interpersonal trust and fostering team cohesiveness. Knowledge-sharing, effective work in multi-cultural environments, trust and cohesiveness are sources of competitive advantage for virtual teams. This study investigates the antecedents and predictors of cohesiveness in global virtual teams working on projects for actual business clients from China and Brazil. It focuses on the impact of trust, sharing knowledge and cultural intelligence on the development of team cohesiveness, specifically on the relationships between unit grouping - cognitive trust (Sarker et al., 2003), metacognitive (knowledge driven) cultural intelligence (Ang et al., 2007), knowledge sharing (Bock et al., 2005), and team cohesiveness (Man & Lam, 2003).

MODEL BUILDING AND HYPOTHESES DEVELOPMENT

Cultural Intelligence. Intelligence, deemed as the capacity for learning, reasoning, understanding, and applying knowledge, has long been conceptualized above and beyond simply cognitive abilities, to include cultural capabilities. These capabilities, referred also as cross-cultural competence or 3C (Matsumoto & Hwang, 2013), sum up the skills, knowledge, and behaviors that facilitate respectful and appropriate collaboration in multicultural contexts. A measure of cultural capabilities, cultural intelligence addresses the ability to adapt, adjust, and function effectively in different cultural environment. Cultural intelligence has been considered to be culture-free (Ng & Earley, 2006) and improve understanding in cross-cultural interactions (Earley, 2002).

The construct of cultural intelligence has been conceptualized as a multifaceted construct that consists of cognitive, motivational, behavioral, and metacognitive dimensions (Ang et al., 2006). In this conceptualization, the cognitive dimension consists of general knowledge about others cultures, the motivational dimension is described by the

magnitude and direction of energy applied toward learning and functioning in cross-cultural situations, the behavioral dimensions addresses the suitability and appropriateness of actions in cross-cultural interactions, and the meta-cognitive dimension refers to the process by which individuals acquire and understand cultural knowledge. A different conceptualization of cultural intelligence, in the form of intercultural communication competence emphasizes the affective dimension related to empathy, cognitive and behavioral dimensions that highlights interaction seeking and behavioral adaptation (Arasaratnam & Banerjee, 2011).

Willingness to share knowledge. In light of the multifaceted conceptualization of cultural intelligence, the cognitive dimension that is based on acquiring, processing, and disseminating information about other cultures has the important role of facilitating cross-cultural interaction. Most likely, the cognitive dimension, in the form of cultural knowledge about values, norms, practices and conventions that are acquired through education and experiences can contribute to the creation of an accurate body of knowledge shared by participants in cross-cultural interactions. This body of knowledge can support the formation of a joint vocabulary and common tongue that is understood by individuals with different cultural backgrounds who interact and communicate during the process of virtual teamworking. While it could be learned independently, this cultural knowledge is likely to be more accurate, prompt, and updated when it is shared by an individual who comes from that culture or is cross-culturally literate. A second dimension of the cultural intelligence conceptualization, the motivational dimension that reflects the capability to direct attention and energy toward sharing, learning about and functioning in multi-cultural situations is instrumental for the creation of a common tongue in virtual teams. As long as culturally-literate and knowledgeable team members are motivated to share relevant cultural knowledge, all members of the virtual team can become aware of, form, understand, and utilize a joint vocabulary and common tongue. The motivation or willingness to share knowledge and generate communal information within the virtual team that is perceived similarly by all team members is likely to permeate cultural boundaries and enhance team communication.

Another dimension of cultural intelligence, the metacognitive component reflects higher-order cognitive processes that individuals employ in order to acquire and comprehend cultural knowledge. Ang et al. (2006) suggest that this component of cultural intelligence is related to the cultural awareness and describes the extent to which individuals will adapt and use applicable strategies. These processes include knowledge of, monitoring and revising mental models of cultural norms. Gozzoli and Gazzaroli (2018) suggest that individuals who score high on this dimension of cultural intelligence are consciously aware of others' cultural preferences, understand similarities and differences across cultures, question and reflect on cultural assumptions and are aware of when and how to apply their cultural knowledge. Accordingly, the metacognitive dimension of cultural intelligence contributes together with the cognitive and motivational dimensions to individual team members' capability and willingness to share knowledge with their teammates.

H_1: *The higher the level of metacognitive cultural intelligence of team members, the more team members are willing to share knowledge with other members in their team.*

The metacognitive component of cultural intelligence has a positive influence on the shared values of culturally heterogeneous teams (Adair et al., 2013) and stimulates creativity in a culturally diverse environment (Bogilovic & Skerlavaj, 2016). Without a doubt, the motivational cultural intelligence is essential for promoting growth of cognitive and metacognitive cultural intelligence (Ng & Early, 2006). In a virtual team, motivated members with different cultural backgrounds (i.e., members who score high on the motivational component of cultural intelligence) are likely to develop a better understanding of – and build upon – each other's ideas. These virtual team members who share similar ideas tend to empathize and support one another, adapt and develop cooperative working relationship, reciprocate, and benefit from creative approaches and mutual understanding. Therefore, we hypothesize that:

H_2: *There is a direct positive relationship between the individual metacognitive cultural intelligence and level of trust that individual has in other members of the team.*

Cohesiveness is a dynamic process that is reflected in the team members' attraction to their team and motivation to maintain team membership (Man & Lam, 2003). Cohesive team members tend to bond to each other and are committed to contribute to the accomplishments of their team's objectives. Team commitment can be affective, to the degree to which team members enjoy team interaction and membership; normative commitment, to the degree to which team members are committed to their team mainly because they feel responsible to the team because of a

sense of duty or positive reciprocity; or continuance commitment, to the degree to which team members are committed because they have reasons (e.g., keeping a job) to continue working with the team.

As a dynamic process, cohesiveness develops over time, sometime on a trial-and-error basis, in which team members bond, engage in team interactions and, eventually, develop commitment to the team. One sine-qua-non-condition for developing commitment and cohesiveness is the voluntary, targeted and purposeful action choice to actively interact and work with the other team members. In the absence of this action choice, bonding and attraction to the team are less likely to occur (Javernpaa & Leidner, 1998). Arguably the behavioral component of cultural intelligence is likely to be related to actions taken by actively team members to search for, engage or facilitate interactions that can lead to attraction and commitment to the team. While the ability and willingness to share cultural knowledge are important for effective virtual teamwork, actual behaviors of virtual team members are at least as influential. Most likely, effective cross-cultural adaptation and adjustment is related to the adoption of behaviors that contribute to the accomplishment of virtual team goals. These behaviors are likely captured in the behavioral dimension of cultural intelligence and include the capability to exhibit appropriate verbal and non-verbal actions when interacting with different team members. These behaviors are likely to provide opportunities and time for interaction and generate venues for developing commitment and cohesiveness (Earley, 2002). Thus, we hypothesize:

H_3: *The higher the level of cultural intelligence a team member is having, the higher is the degree of cohesiveness of the team.*

Trust is a major factor influencing the cohesiveness among virtual team members (Sarker et al., 2003). DeRosa et al. (2004) argue that trust is one of the most important factors contributing to virtual team success and suggest that trust depends on team leadership and information sharing among team members. The level of trust in virtual teams is thought to be a necessary outcome of positive groups interaction (Furomo and Pearson, 2006). Sarker et al. (2003) identified personality based, intuitional based and cognitive based trust. They further divide cognitive based trust into reputation stereotyping and unit grouping that relates to the belief members have in the common goal for the outcomes. Furthermore, Jawadi (2010) suggests that trust in common goals depends on information shared by members of virtual groups, and especially their willingness to share knowledge. In their attempt to contextualize trust, Jarvenpaa et al. (2004) analyzed the interdependence between trust, communication (information sharing), and cohesiveness, and identified an interaction effect between trust and communication, suggesting that trust depends on the situation's structure. Based on these findings, as well as the opinions advanced by DeRosa et al. (2004) that trust in team goals (therefore cognitive trust) is built through information sharing by the team members, we hypothesize that:

H_4: *The higher the willingness of team members to share their knowledge with the other members of the team, the higher is the unit grouping trust team members have in their team.*

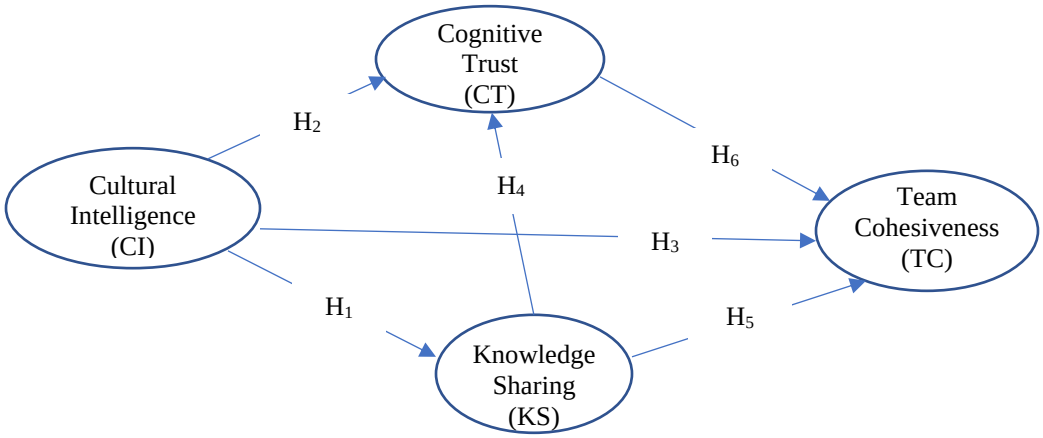
The reasoning that culturally intelligent virtual team members share knowledge with other team members is in line with the concept of cultural boundary spanning (Di Marco et al., 2010), which refers to bridging processes between different cultures, including gaining and exchanging information, achieving influence, and cooperating with people from other cultures. Just like boundary spanners engage with others outside their main group, cultural boundary spanners are knowledgeable and motivated to acquire an understanding of people and organizations outside their own culture and interact with them. When sharing cultural knowledge, they contribute to the connection of different cultures and maximize personal outcomes (Hong et al., 2000). As virtual team members share knowledge within their team, they socialize and grow closer to their teammates. Through knowledge sharing, they develop a deeper understanding of other team members, increase mutual understanding, reduce the potential for cultural blunders, and optimize communication and collaboration. Team members become more attracted to their team, and increase the level of commitment to their team. Consequently, knowledge-sharing contributes to developing stronger team relationship and emotional bonds with members of the virtual team (Hambley et al., 2007). The cognitive and motivational dimension of cultural intelligence can explain team members' ability and desire to reach out to culturally-dissimilar members of their virtual teams. In the process, they share cultural knowledge, reduce cultural disparity, enhance interaction and communication, and foster virtual team's cohesiveness. Accordingly, we suggest that:

H5: *The more a team member is willing to share knowledge with the other members in his/her team, the higher the team cohesiveness will become.*

The cohesiveness of a team is the degree to which members are motivated and attracted by their team members (Ham 2018). Group cohesiveness influences the performance of the team (Furumo and Pearson, 2006). The literature suggests that trust in team leadership increases team cohesiveness and individual's trust in global virtual team has a direct positive effect on team cohesiveness (Jarvenapaa et al., 2004). DeRosa et al. (2004) suggested that, as teams become more distributed from a geographical standpoint, it may become more difficult for team leaders to create a cohesive team structure. Therefore, in the case of virtual teams, trust in the team members may turn out to be even more important than in co-located teams. Maznevski and Chudoba (2000) performed a qualitative longitudinal analysis of virtual teams' dynamics and effectiveness and found that team that meet more frequent develop strong relationships between team members and therefore commitment to the team. Leadership's role increasing team trust and therefore cohesiveness was the topic of the several studies (e.g. Furumo et al., 2012; De Pillis and Furumo 2006). Considering the above results that the literature provides we propose:

H6: *Team trust and team cohesiveness are directly related. The more the team members trust each other, the higher the degree of team cohesiveness.*

Figure 1. Model and Hypotheses



METHOD AND RESULTS

The sample is constituted of students enrolled in an international field case course that is offered each spring semester since 2007. The out-of-sequence course starts in February and ends in May. Students from four universities in Brazil, Belgium, China, and US participated in multicultural teams to solve problems for local companies (clients) in China and Brazil. Each team was formed of a mix of students from the participant universities with each team having participants from each university. Students' professors developed the assignments for each team and teams worked virtually using communication venues, such as: Skype, Zoom, Facebook, WhatsApp, WeChat, Google Docs, QQ, as well as email. Participating students got to know each other in an introductory meeting and were encouraged to exchange contact information. Then, the students from each team met virtually to determine together the scope and structure of their project, divide work, conduct research, coordinate effort, gather information, and work on presentations and written reports. Students were encouraged to extend their connection beyond the scope of the project and develop bonds that could last for a lifetime. The course ended with a workshop where each team presented results. A survey instrument was administered at the end of the virtual teamwork.

Measurement. The questionnaire was developed with scales for team trust, team cohesiveness, cultural intelligence and knowledge sharing. Students were asked to give an answer on a Likert scale 1 to 5, with 1 = strongly disagree and 5 = strongly agree, for items that will measure the variables presented below.

Team cohesiveness (TC) was measured using Warkentin et al. (1997) approach and the scale developed by Chidambaram (1996). Trust (cognitive/grouping trust) in the team members that worked virtually (CT) was measured with the scale adapted from Sarker et al. (2003). The metacognitive cultural intelligence (CI) was

measured by a scale adapted from Ang et al. (2007) using the method developed by Erez et al. (2013). The knowledge sharing (KS) construct is detailed by Huang (2009). The scale to measure the construct was adapted from Bock et al. (2005) further developed by Huang (2009). The theoretical model and the hypotheses are presented in Figure 1 above.

Table 1. Correlation Matrix and Descriptive Statistics

N = 109	Mean	Std. Deviation	CI	CT	KS	TC
CI	4.245	0.6037	1			
CT	4.021	0.9873	0.099	1		
KS	3.941	0.6999	0.197	0.172	1	
TC	3.889	0.9378	-0.040	0.285*	0.214*	1

* significant correlation observed at the 0.05 level (2-tailed)

Table 2. Exploratory Factor Analysis (EFA) and Reliability Data for the Variables

Variable	Components	KMO test	Factor Loading	AVE	Cronbach's alpha
Metacognitive Cultural Intelligence (CI)	CultIntKnw1: I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds	0.709	0.908	0.751	0.830
	CultIntKnw2: I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.		0.821		
	CultIntKnw3: I am conscious of the cultural knowledge I apply to cross–cultural interactions.		0.869		
Cognitive (Grouping) Trust (CT)	TrustGoal1: My remote team members' goal, as mine, is to do a good job on the project	0.767	0.953	0.898	0.943
	TrustGoal2: My remote team members' goal, as mine, is to get a good grade on the project		0.937		
	TrustGoal3: My remote team members' goal, as mine, is to use this project to gain experience in real life projects		0.954		
Knowledge Sharing (KS)	KnwShare1: I share my work reports with our team members frequently.	0.811	0.763	0.688	0.881
	KnwShare2: I always provide documents, methodologies and models to our team members.		0.853		
	KnwShare3 I share my experience or know-how with my team members frequently.		0.843		
	KnwShare4: I always provide my know-where or know-whom at the request of our members		0.855		
Virtual Team Cohesiveness (TC)	CohevMem1: Were team members committed to the goals and objectives of the team during this project?	0.828	0.828	0.845	0.894
	CohevMem2: Did the members have a strong sense of belonging to the team?		0.949		
	CohevMem3: Did team members recognize and respect individual differences and contributions during this project?		0.953		
	CohevMem4: Were team members open and frank in expressing their ideas and feelings during this project?		0.944		

Results. All participating students answered the questionnaire and 109 complete responses were obtained. The first steps in data analysis are presented in Table 1 and Table 2. In Table 1 is presented the summary of the descriptive analysis with the variables' mean and standard deviation values as well as the Pearson correlation matrix. An exploratory factor analysis (EFA) with varimax rotation was conducted with results presented in Table 2. Internal consistency was measured with Cronbach's alpha and the results for each scale are given in the last column of the table. All scales are reliable having values above 0.70 (Nunnally, 1978). The average variance extracted (AVE) for all variables is above the acceptable value of 0.5. The proportion of variance in the variables caused by the underlying factors is given by the Kaiser-Meyer-Olkin (KMO) test. All KMO results are very high indicating the adequacy of sampling, thus passing the test. The Bartlett's test of sphericity showed significant results (sig. for all scales at 0.000) therefore the factor analysis is valuable with the data set (Padilla & Divers, 2016).

The next step of the analysis used AMOS 26 to conduct a confirmatory factor analysis (CFA) to determine a good fit for the measurement model. The results are presented in Table 3. The initial CFA output showed a poor loading for TrustGoal1 and therefore this observed item was removed from the measurement model. Hence, the model obtained

has 3 observed measures for the latent variable CT and presents good fit indices above the threshold values (Jöreskog, 1993): CMIN/DF = 1.653, GFI = 0.900, CFI = 0.961, and RMSEA = 0.061. The AVE values for the latent variables are all above 0.5 (Table 3A) and all composite reliability (CR) values are above 0.7, thus convergent validity is assured (Padilla & Divers, 2016). The value for the square root of AVE for each latent variable is higher than the correlations between the adjacent latent variables, hence proving discriminant validity (Table 3B). The structural model with the main latent variables cognitive team trust (CT), metacognitive cultural intelligence (CI), knowledge sharing (KS), and team cohesiveness (TC) was used to test the hypotheses and the results obtained by running it are presented in Table 4. Each path is shown with its standardized regression weight estimates, the S.E values, and p-values giving the path significance.

Table 3. Confirmatory Factor Analysis: Measurement Model Validity and Reliability

A. Measurement Loadings, Convergent Validity

Measured Indicator		Latent variable	Loadings	AVE	Square-root of AVE	C.R.
CtlIntlKnw3	<---	CI	0.786	0.639	0.799	0.839
CtlIntlKnw2	<---	CI	0.675			
CltIntlKnw1	<---	CI	0.918			
TrustGoal3	<---	CT	0.940	0.848	0.920	0.943
TrustGoal2	<---	CT	0.890			
TrustGoal1	<---	CT	0.930			
KnwShare4	<---	KS	0.820	0.641	0.801	0.842
KnwShare3	<---	KS	0.812			
KnwShare2	<---	KS	0.769			
CohevMem4	<---	TC	0.736	0.687	0.829	0.897
CohevMem3	<---	TC	0.894			
CohevMem2	<---	TC	0.866			
CohevMem1	<---	TC	0.809			

B. Confirmatory Factor Analysis. Discriminant Validity and Composite Reliability (C.R.)

	CI	CT	KS	TC
CI	**0.7996**			
CT	0.0303	**0.9209**		
KS	0.4490	0.2138	**0.8009**	
TC	-0.0265	0.4507	0.2594	**0.8290**

Note: Correlations between latent variables in the matrix and square-root of AVE on the diagonal (in bold).

Table 4. Structural Equation Model – Path Results

Path	Standardized Regression Weights	S.E.	P-value	Results
KS <--- CI	0.4561	0.1402	***	H1 supported
CT <--- CI	-0.0814	0.2843	0.4383	H2 not supported
TC <--- CI	-0.1323	0.1991	0.2387	H3 not supported
CT <--- KS	0.2608	0.2106	0.0130	H4 supported
TC <--- KS	0.2932	0.1470	0.0102	H5 supported
TC<--- CT	0.4173	0.0750	***	H6 supported

Hypothesis 1 stated that there is a direct positive relationship between cultural intelligence and knowledge sharing. Indeed, the standardized regression weight is 0.46, p-value <0.01, therefore a strong positive relationship. Hypothesis 1 is fully supported. There is a significant path from cultural intelligence to knowledge sharing. Hypothesis 2 was assuming that the relationship between cultural intelligence (knowledge) and trust (knowledge) is positive. The path has a standardized regression weight that is not significant therefore hypothesis 2 is not supported. There is no direct path, and therefore no direct relationship between cultural intelligence (the only exogenous variable in the model) and the trust in the virtual team. The positive relationship between cultural intelligence and virtual team cohesiveness was proposed by hypothesis 3. The results from Table 4 show no support for a positive liaison. Hypothesis 3 is not supported and therefore cultural intelligence is not directly increasing team cohesiveness. Hypothesis 4 stated that the more students share knowledge with the other team members, the higher the trust in their virtual team. Indeed, results support this hypothesis. The path KS → CT has a standardized

regression weight of 0.26 significant at 0.013 (at almost 1 percent). Sharing knowledge will encourage and build team trust. It was hypothesized that team cohesiveness is high if knowledge sharing is high among the team members (hypothesis H5). The hypothesis is supported (the p-value at 1 percent). Finally, hypothesis 6 was predicting that team trust and cohesiveness have a direct positive relationship. Table 4 shows strong support for this hypothesis (standardized regression weight 0.42 significant, p-value <0.01).

DISCUSSION AND CONCLUSIONS

Virtual team work is getting more important, especially in the time period when face-to-face contact tends to be more difficult due to COVID-19. Key to team success is cohesiveness of the group working for a common goal, finalizing a project (Dulebohn and Hoch, 2017). There are several avenues available to increase interconnection and achieve unity in the group. First, team cohesiveness is obtained in time through a process of building trust among team members as indicated by Man and Lam (2003). Second, knowledge sharing proves to be a determinant of cohesiveness. Indeed, as advanced by Simpson (2017) when presenting the advantages and disadvantages of virtual project teams, communication between team members represents the key to team success. Willingness to share knowledge is thus a key contributor to virtual team cohesiveness. Interestingly, though cultural intelligence represents a critical ingredient for team success, the metacognitive component of cultural intelligence is not directly related to the cognitive team trust or to team cohesiveness (hypotheses 2 and 3). Indeed, cultural intelligence is a multidimensional construct with different loci of intelligence within an individual (Ang et al. 2007). However, this study found that the metacognitive facet of cultural intelligence is indirectly related, through knowledge sharing, to both trust and cohesiveness. Metacognitive cultural intelligence represents the knowledge acquired through international experience obtained directly by individuals through interaction with other cultures. It represents an essential ingredient for each team member. Previous interactions and experience will favor knowledge sharing among team members. Not very many students have a previous, first-hand, high level of knowledge of different cultures and are not very conscious on how to use it when interacting with students from completely different cultural backgrounds.

Since team trust and team cohesiveness represent the key to success for teaching in an international setting with students having different backgrounds and meeting only virtually, the education process and the course curriculum has to be designed in such a way to encourage trust building. The course syllabus has to include innovative components that will bring the students closer to each other and develop interactions beyond the formal class requirements (Kardes, 2020). Such components incorporated in time include: student driven debate on managing activities in international settings, investigation of business ideas/opportunities in the host country, mock defense of the project, all with the goal of increasing team cohesiveness. High levels of knowledge sharing will conduct to increase in team trust and in team cohesiveness. High levels of team cohesiveness might be obtained through development of trust in the team knowledge. Motivation for knowledge sharing can be increased by encouraging team member connectivity and frequent information exchange beyond the team project. Faculty feedback indicates that the multicultural teams were more creative in developing solutions. Student feedback shows that working in a multicultural environment helped them find surprising solutions due to the interaction among team members. Both student and faculty feedback show that, on average, it took longer to reach consensus and to make decisions. However, the number of conflicts and misunderstandings was surprisingly low.

Any exchange of information and knowledge will increase team trust and cohesiveness. Working on a global and complex project requires understanding of individual differences between team participants. In this environment there are several types of people, professionals from different areas of knowledge involved. Communication is extremely important at all stages of the project, and especially at the crucial starting point. Therefore, collaborative learning pedagogy becomes more important and ways to implement it have to de integrated in the course syllabi. Meetings on virtual platforms, such as Zoom, Teams, provided an excellent opportunity for managing communications. These tools represent an excellent opportunity to involve all stakeholders, streamlining processes (e.g., Kardes, 2020, Simpson 2017).

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A Case Study on the Intersection of Needs: Administration, Athletics, and Student Preparation

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ABSTRACT

This article addresses several issues within the university using a collaborative approach to identify the intersection of needs. The solution was a curricular change within sport business management that satisfied the interests and concerns of each of the stakeholder groups by adding a one-credit practicum. The case described below describes the situation, the interests and concerns of each stakeholder group, the solution, and how it benefits each stakeholder. Given that students are actively participating in sport business management, this approach is considered active learning. The article also includes some discussion on parallel disciplines and industries. Finally, a single three credit internship was added to enhance the one credit experiences.

Keywords: Internship, Higher education, Innovative curriculum, Student experience

BACKGROUND

The setting is a small, private, religiously affiliated university. The university is nearly 100 years old and has approximately 2500 students. There are four stakeholder groups: students, the athletics department, the university, and prospective employers.

The University has four colleges with multiple schools/departments within each college. The University is a traditional liberal arts university, but there are a number of career-based majors, which mostly reside in the College of Business. Although many institutions of higher education have declining enrollment, this University appears to be experiencing steady enrollment.

Students in question are sport business management majors. Sport Business Management resides in the College of Business and is one of the largest majors in the University. As such, students are required to take the business core, which makes them more versatile competing for positions both in and outside of the sports industry.

The athletics department houses 25 sports, with over 750 student athletes making up 12 male and 13 female teams. The athletics department is modest in size and at times struggles to staff events based on size and number of events being held simultaneously.

Many sport management students enter college with aspirations of working in professional sports upon graduation. This narrow view of the industry clearly overlooks the vast opportunities at the college level. The "in the trenches" mentality of tasks performed helps prepare students to take on many different assignments in a multitude of areas.

INTERESTS AND CONCERNS

In this section, the interests and concerns of each stakeholder are discussed as well as the action that the stakeholder will take if their interests and concerns are not satisfied.

The University is to offer majors/programs designed to meet the interests of their current and prospective students. Not including the club sport numbers, over 25% of the students at the institution are student-athletes. A significant part of these students' lives has been tied to their love of (their) sport, which naturally parallels to their interest in Sport Business Management. Offering the major attracts potential students to the institution, but also provides as a change of major option for those who do not start in the major. The institution will ensure that the students have a quality experience inside and outside of the classroom which will enhance their ability to find jobs as graduates. If the students cannot obtain jobs, the University will lose its reputation as a quality program.

The interests and concerns of the students are twofold. Students often decide on a major even before they enter college (Gordon and Steele, 2003). Interestingly, there are currently 2800 different majors in colleges in the United States (Stock and Stock, 2018). This first-choice major is typically based on interests that have developed over long periods (Beggs et al., 2008; Stock and Stock, 2018; Turner, 2004; Freedman, 2013). Sports are certainly one of the interests that can develop in high school (Lumpkin et al., 2017; Sheehy, 2013), but may create misperceptions of the

careers in sports. For example, many believe a career in sports equates to working in the world of professional sports. Working with college athletics provides an opportunity to see a large part of the industry. Most high school students are not able to continue athletically at the college level, leaving a desire to pursue sport business in the classroom. In fact the NCAA site states that 1300 colleges and universities participate in the three divisions (Burrell, 2019). It is interesting to note that while over 7% of high school players participate in their sport in college at any level, approximately 1.3% of both men's and women's high school athletes make it to Division II collegiate athletics (http://www.scholarshipstats.com/varsityodds.html). Thus, making connections off the playing surfaces allows students to maintain their interest in sports academically despite no longer being active participants in college.

In addition, due to students changing their major, there is strong need for this major even being an option. One of the interests and concerns of students may be to learn about their major early in their academic career before they are too far into the major to determine that they may not like it. Seventy-five percent of the students change their major at least once in their college career (Stock and Stock, 2018). According to the same study, the later a student changes their major, it is likely that the change will extend their college career by an entire semester, and, worse, they will have taken courses that do not apply to their new major (Stock and Stock, 2018). They may also become very frustrated and leave the University.

The mission of the Athletic Department is to provide a positive experience for their student-athletes. In order to achieve these goals, Varsity Athletics provides support staff for events on campus ranging from required to optional staffing, while attempting to stay within their budget. Given the modest staff, this goal is very difficult to achieve. Providing student athletes with an experience beyond the minimum level of expectations affects retention and recruitment. Student athlete experience, budgets, recruitment, and retention all drive the bottom line for institutions. It is important to note that most of the college sports are not profitable (Gurney et al., 2017). If the recent pandemic causes colleges to cancel sports, it will have an effect on their ability to maintain programs, thus making the university less attractive to prospective students (Dellenger and Forde, 2020) .

Prospective employers are also stakeholders. They are interested in having a supply of well-qualified prospective employees. The more experience the prospective employees have, the better it is for the employers. If students are not well-prepared by the University, the employers will go elsewhere. In a qualitative study by Irwin et al (2019), determined that the relevancy of experience and degree topic were significant. Additionally, interpersonal and professional skills, sometimes known as soft skills, were important and especially enhanced during an internship (Talley, 2018) .

The solution was, first, to identify the intersections. Then, determine a solution for the intersection that would satisfy both stakeholders in the dyad and ultimately an overall solution that would encompass the needs of all stakeholders.

The instructor settled on a one-credit "internship" that would be performed in the student's freshman year to assist students in receiving some practical insight on the sports industry. The one credit experience is proportionate (67 hours) to the expectations for a 3-credit internship, which requires 200 hours. Students would gain experience in a variety of areas, but mostly athletic communications and operations. Duties might include working with an athletic team, working in the press box, or working on the field of competition. The student would develop a broad understanding of the profession and specifically understand that all sports positions are not necessarily glamourous nor in professional sports.

The Athletics Department, which is understaffed, would gain access to "free" help, stay within their budget, and staff the functions in Athletics. With a larger staff, Varsity Athletics is able to reallocate its resources, thus enhancing the overall experience. Without the help, Athletics may have to make the difficult decision to fund a work-study student to operate the music during a game, or add the responsibility to a full time staff member (Irwin et al., 2019). Therefore, students would gain experience in a variety of sports-related jobs. Athletics reported saving about 15% in their work study budget from the previous year using the student volunteers. According to the athletic director, "We hope to double that percentage in our savings moving forward as we have laid a nice foundation." In addition, there is hope to expand the types of position offered to the students in the future, especially in broadcasting, social media, and graphic support.

The employers might be the ultimate winner in this scenario as they will be hiring graduates who are trained in a variety of staff functions. Students would be able to put a line on their resume describing their experience (Wiswall and Zafar, 2015). For students pursuing a career in sports management, this is an essential resume experience and

gives them insight into college athletics operations behind the scenes (Lumpkin et al., 2017). The long-term plan would be for employers to expect this unique experience from our graduates.

As noted above, all stakeholders will benefit from this curricular solution.

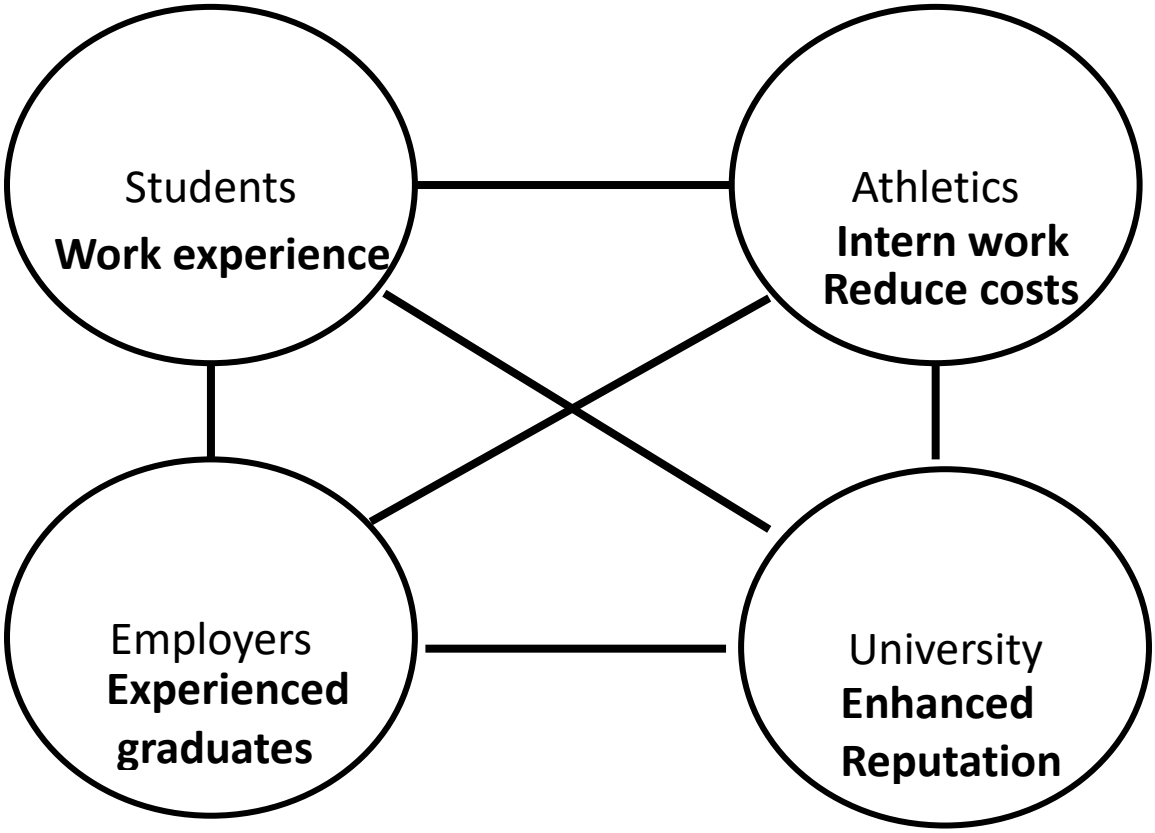

Figure 1: Model of the Intersection of Needs

As shown in **Error! Reference source not found.** above, each of the stakeholders benefit from the curricular initiative as noted by the bold text in each circle.

OTHER APPLICATIONS

This model can be used in a variety of disciplines. It suggests that the instructor or department chair should identify the components of each circle in the model. it will be a good roadmap. As an example, an arts or hospitality program could follow the same example.

Art or music majors would be able to work/organize an art or music event similar to an athletic contest, whether a musical or an art show. The time would give similar experience to students interested in being in the field, while helping the department host an event.

One can also see the advantages to applying the model to a hospitality program. Students could gain early knowledge of the hospitality industry by performing various roles in a university-affiliated program. The rest of the application to hospitality would map also to Arts.

STUDENT SUPERVISOR

As the final details were put in place for the one credit internship, we quickly realized we may be creating more work than we intended. Neither the athletic department, nor the academic department have the resources necessary to properly assign students to the roles described. A decision was made to assign/hire a senior level student intern to serve as a liaison between the sport management department and athletics. The 3-credit internship experience would be unpaid, and the intern would match student interests and capabilities in providing staffing for the one-credit experiences. This role is viewed as an extremely important position for all involved, but especially the intern (Busteed and Seymour, 2017). The senior would gain experience working directly with the athletics department, collaborating with the athletic director or a senior level administrator. In addition, they would gain valuable experience assisting the faculty in finding students, while adding supervisory experience to their resume. The last student occupying this role left the institution with two strong references and was identified as the readiest of all graduates to enter the industry.

Overall, this solution is a classical "win-win."

IMPLICATIONS FOR THE FUTURE

There are many desired outcomes with the creation of the one-credit internship. The first would be to increase confidence in major selection. By allowing for practical experience, the students are getting a first-hand look into the field. Belch and Mueller (2003) found in the word of residence life, practical experience as an undergraduate were strong predictors to serving in a professional role upon graduation.

The Athletic department still requires assistance through full internships. These one-credit experiences would give the athletic department a preview, or on the job interview, of future candidates for full internships, thus allowing them to select the very best.

The program is built to allow students to take the class multiple times. While it is only required once for graduation, students and professional alike would see the value in taking the class as an option beyond the requirement.

Another desire would be the liaison position (three credit supervisory intern) continue to be a valued and sought-after role within athletics. Collaboration between athletic and this student could build relationships to the point where they are critical in receiving a job post-graduation.

And finally, an interesting quantitative study would be the job placement of graduates, from those who took the course as required, to those who signed up multiple times, to those who completed the three-credit position as well. I would assume there would be a difference in the jobs attained.

INITIAL ASSESSMENT

The first year has witnessed several incidents of success. The athletic department, as predicted, has had an 'on the job' interview of sorts with the practicum students for full semester internships in the future. The sport management students have become a known entity within athletics. Juniors and seniors have inquired about participating despite not being required from a curriculum standpoint. And finally, incoming students and their parents have made comments reflecting a sense of relief these experiences are occurring in the first year. Two senior level students have served as interns to help oversee the assignment of tasks between athletics and the sport business management program. Both have found the experience to be very rewarding and wished they had the same opportunities as freshman. One stated that he would have been able to sort out his interests sooner. And finally, the sport business management program has received some positive press across campus for assisting with athletics.

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An Expanded Study of the Introductory Programming Course Sequence

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ABSTRACT

In this paper, we expand upon a previous study (Tennyson and Beck, 2018) of knowledge retention of students across introductory programming courses. We also study students' perceptions of the course sequence, and we provide an overview of program requirements at high-ranking peer institutions in regards to their introductory programming course sequences. Besides that, we gather qualitative data that measure students' perceptions of the introductory sequence, based on a student survey. Finally, we compare the required course sequences at highly-ranked peer institutions. We believe our findings are valuable in developing introductory course sequences that will improve the overall learning and success of students in computer science programs.

Keywords: knowledge retention, computer science, survey, undergraduate education

INTRODUCTION AND LITERATURE REVIEW

This study is an extension of a previous study (Tennyson and Beck, 2018) whose primary purpose is to investigate how much knowledge students retain from a CS1 course when entering a CS2 course. The goal is to improve the introductory course sequence in computer science programs in a way that will position students for long-term success, and perhaps even lead to better student engagement and retention. We have expanded upon the original study in three ways: (1) instructors were swapped to teach opposite course sequences and the results were combined with the original results to remove the instructor as an experimental variable, (2) in addition to the quantitative data gathered through assessments, we gathered qualitative data through surveys to gauge students' opinions about the course sequence, and (3) program requirements at high-ranking peer institutions were reviewed to ascertain current practices regarding introductory course sequences.

We use the commonly-accepted definitions of CS1 and CS2 (Hertz, 2010). CS1 is an introduction to programming course, while CS2 refers to an introduction to data structures course. The content of CS1 and CS2 courses has been the subject of countless academic studies. A joint publication by the ACM and IEEE Computer Society curricula (Joint Task Force on Computing Curricula, Computer Science Curricula, 2013) is the de facto authority on computer science. These guidelines describe knowledge units that would typically be covered in CS1 and CS2 courses. Other academic studies attempt to provide an overview of the content of CS1 and CS2 courses and to provide better insight and understanding of it (Schulte and Bennedsen, 2006; Pears et al., 2007; Elarde and Chong, 2011). Schulte and Bennedsen (2006) conducted a comprehensive survey on Object Oriented (OO) topics being taught in CS1 classes across multiple countries and across multiple levels (high school, college, and university) and found that most OO topics are considered to be more difficult by instructors who do not teach them in CS1, and are seen more relevant and on a higher level by those who do. Pears et al. (2007) provided an overview of literature on the topic of teaching introductory programming by examining curriculum, pedagogy, and languages as well as tools that support learning. They concluded that studies focusing on individual learning is no longer sufficient. Instead, larger-scale systematic studies are necessary and provide a better understanding of how to teach introductory programming courses. Elarde and Chong (2011) described how the perspective of computer science educators differs from that of information technology educators with regard to content of their respective introductory courses based on the results of survey given to educators. Their article also takes into account differences between the currently offered content and what would be preferred using results of a second survey administered to students.

Numerous studies have looked at incorporating new methods and content into the CS1 and CS2 curriculum to improve student learning and engagement, or to modernize it and align it with current industry (Hovemeyer and Babcock, 2009; Mullins, Whitfield and Conlon, 2009; Decker and Lawley, 2013; Chen and Hall, 2013). Hovemeyer and Babcock (2009) described how they use various assignments utilizing text characters in a terminal window for graphics in order to make their CS1 course more fun and exciting for students without the complexity of actual graphics. Instructors at Slippery Rock University in Pennsylvania (Mullins, Whitfield & Conlon, 2009) managed to improve retention by using Alice 2.0, a 3D micro-world programming environment, for their introductory programming course in a three-course sequence instead of C++. The research of Decker and Lawley (2013) focused

on motivating students by giving them voluntary challenges to accomplish various achievements similar to those in games. Chen and Hall (2013) describe how an early introduction of software engineering concepts improved student success.

Whether to teach objects late, early, or in-between has also been a subject of great debate (Reges, 2006; Kölling and Rosenberg, 2000; Nevison and Wells, 2003; Astrachan, Bruce, Koffman, Kölling, Reges, 2005; Vilner, Zur, Gal-Ezer, 2007; Ehlert and Schulte, 2009; Lister et al., 2006). Reges (2006) successfully changed the CS curriculum at the University of Washington in Seattle to move away from the objects-early approach in CS1, instead teaching the way courses have been taught in the 1980's before Java. Koelling and Rosenberg (2000) take a different route: Instead of abandoning the objects-first approach, they changed the tools used for teaching the course by using BlueJ, which had been specifically developed for teaching purposes, as the development environment. Nevison and Wells (2003) found it imperative to teach object-oriented programming early in the course. They focus on using case studies, which aid the students in learning by providing a simple setting within the more complex environment. A debate at the 36th SIGCSE technical symposium on computer science education in 2005 between some of the most prolific proponents and opponents of the objects-early approach shows that this is a highly divisive topic (Astrachan et al., 2006). Instructors at the Open University of Israel (Vilner et al., 2007) offered a procedural and an object-oriented course in parallel and found no significant difference in the overall achievements, except with a problem that involved software design, where the group in the object-oriented course performed better. Ehlert and Schulte (2009) conducted an empirical study comparing objects-first vs. objects-late and arrived at the conclusion that that there are no differences in regard to learning gain. They found slight differences in the perceived difficulty and learning climate, which however did not affect the overall results of their study. Lister et al. (2006) provided an in-depth overview over the underlying complexity of the discussion for and against objects-first.

Note that this is not meant to be a comprehensive review of all studies covering the content of CS1 and CS2 courses. Such a task would be infeasible. It is meant to provide background and just a sampling of the multitude of work devoted to studying the content of the introductory programming curriculum from three important perspectives: (1) by merely providing insight into the content of the courses, (2) by improving the content of the courses, and (3) by introducing objects early or late in the curriculum.

In this study, we are not focused on the content of the courses. Rather, we are focused on studying the introductory programming courses as a connected, transitional sequence, which we found to be much less studied. Indeed, we found only a few studies that discuss the transition between CS1 and CS2. Howles (2007) presented a study that tried to correlate characteristics of students to the success of those students as they progressed through the program. Wortman and Rheingans (2007) presented a related study that utilized visualization tools to find correlations and focused only on the introductory programming sequence. Gal-Ezer et al. (2009) studied how teaching CS1 using an object-oriented approach rather than a procedural approach affected student performance in CS2, and concluded that there was no significant difference. Davies et al. (2013) presented the results of a survey regarding approaches to teaching CS0, CS1, and CS2 courses at different universities. Hertz and Ford (2013) looked for correlations between how instructors taught CS1 and CS2 topics to how well students learned those topics. Monge et al. (2015) presented EngageCSEdu, a collection of instructional materials meant to engage and retain students – particularly women and other underrepresented groups – during the introductory computer science courses. Wei and Burrows (2016) looked for correlations between student performance in CS1 to performance in CS2, finding that success in CS1 did indeed correlate to success in CS2.

In this new study, we have expanded upon our previous study (Tennyson and Beck, 2018) in three specific ways. We swapped instructors to teach opposite course sequences, and replicated the previous experiment. The new results were combined with the previous results to remove the instructor as an experimental variable. In addition to the quantitative data gathered through assessments, we gathered qualitative data through surveys to gauge students' opinions about the course sequence. Finally, program requirements at high-ranking peer institutions were collected and reviewed to ascertain current practices regarding introductory course sequences across institutions.

The remainder of this paper is organized as follows: After providing some background information about our university, we will discuss the quantitative experiment. Then we will discuss the student surveys. Finally, we will discuss current practices at peer institutions in regards to their introductory programming sequences.

BACKGROUND

A detailed review of program requirements at different institutions will be presented later. For the purpose of providing pertinent background information, a brief overview will be provided here. A CS1 course and a CS2 course are required almost universally across computer science programs. They are typically required to be taken early in a program and are usually required to be taken as a sequence. That is, CS1 is typically a prerequisite for CS2. Less frequently, a CS0 course is also required to be taken prior to the CS1 course. In this context, a CS0 course is defined as an introduction to a wide range of computer science topics and principles – not delving deeply into any specific topic, but providing a broad overview of computer science as a discipline. Universities often offer a CS0 course for non-majors, but do not require computer science majors to take it.

At Murray State University, during the semesters when the data for this study were collected, all computer science majors were required to complete a CS0/CS1/CS2 course sequence. A "typical" student would take CS0 during the first (fall) semester, CS1 during the subsequent spring semester, and CS2 during the following fall semester. However, all three courses were offered each semester. As a result, the fall offering of CS1 and the spring offering of CS2 were populated by transfer students, change-of-majors, students with AP credit, students who have failed and must re-take courses, and other "non-typical" students, while the complementary offerings were populated by both typical and non-typical students. The CS0 course is counted by the university as a general education course, so it is populated by both computer science majors and non-majors, and multiple sections of it are offered each semester.

METHODOLOGY

In our previous study (Tennyson and Beck, 2018) we compared results from an exam given to students in CS1 at the end of the semester to the results of exactly the same exam given to students in CS2 during the first week of the semester. This research expands the previous study by eliminating one of the experimental variables. In the previous study, one instructor taught the CS1/CS2 sequence during the spring/fall sequence, while a different instructor taught the sequence during the fall/spring sequence. In this expanded study, the instructors were swapped to teach the opposite sequence and the results were combined with the previous study. In this way, the instructor is un-confounded with course sequence. In the combined data, each instructor will have taught each sequence exactly once. In order to further control the experiment, only the scores of those students who took CS1 and CS2 as a cohort and who gave their consent to be included in this research are included in the reported results. As an incentive for the students to study for the test at the beginning of CS2, it was counted as a small part of the final grade for the course. The format of the exam is a mix of True/False, multiple choice, matching terms, and short answer questions.

A survey was conducted to gauge student opinion on the importance of the CS0, CS1, and CS2 course sequence and the student's perceived level of preparedness for these courses after taking the previous one. The main goal of the survey was to determine whether students believe the CS0 course should be a requirement for CS majors and, if so, whether it should be a prerequisite for the CS1 course. The survey is shown in Appendix A.

The survey consisted of nine questions: one to determine the student's major, four to establish the course sequence taken by the student, and four questions to determine the student's opinion about the sequence. One question outright asked the student whether the CS0 course should be required, while another asked the student to rate the importance of the CS0 material. One question outright asked the student whether the CS0 course should be a prerequisite of CS1, while another asked the student to rate how well the CS0 course prepared the student for CS1. In this way, the second open-ended question could be used to substantiate the direct opinion of the students regarding each proposition.

The survey was given to students taking CS1 and CS2 during the last semester that data was collected for the quantitative portion of the study described in the previous section of this paper. Students were asked to complete the survey only if they consented to participate in the study. The survey was entirely voluntary; they were not required to complete it; it was not factor in their grade in any way whatsoever; all data was kept anonymous; and only aggregate data is reported. A total of 32 eligible responses were received.

RESULTS

Survey Results

The survey results are summarized in Tables 1 and 2. Table 1 shows the results of the first question: Should CS0 be

required? Table 2 shows the results of the second question: Should CS0 be a prerequisite to CS1. In each case, four segments of data are shown.

In each table, the first row gives the total results of all respondents. The second row shows responses from only Computer Science majors. The third row shows the responses from only those students who completed either the Spring/Fall or Fall/Spring sequence as outlined in the quantitative portion of the study described in the previous section of this paper. Finally, the last row shows the responses from only the more "experienced" students. In this context, the "experienced" students are those who have already completed at least CS1 or had previous programming experience prior to enrolling in the Computer Science program at MSU.

Note that we wanted to further segment the responses so that we could compare the Spring/Fall responses to the Fall/Spring responses. Unfortunately, there were only 2 responses from students who completed the Spring/Fall sequence, which was deemed to be an inadequate sample size.

Around 38% of the total respondents believed that CS0 should be a required course. Specifically, 12 students believed it should be required, 9 did not, and 11 were neutral or unsure. The CS0 material was given an average importance rating of 1.7. The rating scale ranged from 0 to 3, where 0 corresponded to "Very Unimportant" and 3 corresponded to "Very Important" with a median scale value of 1.5. The same percentage of computer science majors (38%) believed that CS0 should be required. A slightly larger percentage of those students who completed one of the suggested course sequences believe it should be required. Of those students who had completed at least CS1, none of them believed CS0 should be a required course. Indeed, the experienced students also deemed the CS0 material less important, giving it a rating of 1.3, which is less than the scale's median value of 1.5.

Around 31% of total respondents believed CS0 should be a prerequisite to CS1. Half of the students believed it should not be a prerequisite. Half of the computer science majors agreed that it should not be a prerequisite, while a smaller percentage (29%) believed it should be. Only one of the "experienced" students believed that it should be a prerequisite, while 60% believed that it should not be. The question "How well did CS0 prepare you for CS1?" received an average response of 1, which corresponded to the response "It prepared me only a little". The scale values ranged from 0 to 3, where 0 corresponded to "It didn't prepare me at all" and 3 corresponded to "It prepared me perfectly".

Table 1: Should CS0 be required?

	Yes	**No**	**Unsure**	**Rating**
Total	12	9	11	1.7
CS majors	9	6	9	1.9
Sequence	7	4	5	1.9
Experienced	0	5	5	1.3

Table 2: Should CS0 be a prerequisite to CS1?

	Yes	**No**	**Unsure**	**Rating**
Total	10	16	6	1
CS	7	12	5	1.1
Sequence	5	8	3	1.1
Experienced	1	6	3	1.1

Based on these results, we believe CS0 should almost certainly not be a prerequisite to CS1. More students believed that it should not be a prerequisite than believed that it should. The disparity became larger when considering just computer science majors, and it became even larger when looking at the more experienced students.

Whether CS0 should be required at all is not as definitive. Overall, slightly more students believed that CS0 should be required. This was true across all segments, except for the experienced students. All of the experienced students who gave an opinion (60% of the respondents in this segment) believed that it should not be required.

In order to see how our CS program compares to that of our peers, we examined the CS curriculum of the top 20 universities according to the U.S. News Best Colleges "Universities South" rankings. Data was gathered from the academic catalogs of these universities and from the websites for their CS degree. Information was collected from universities that vary greatly in size and enrollment numbers (U.S. News & World Report, 2018).

Review of Peer Institutions

Which universities offer only a Bachelor's Degree in CS, and which offer Master's Degrees as well, are also questions we are attempting to answer. Elon University, for example, offers Bachelor of Arts and Bachelor of Science degrees in Computer Science and minors in Computer Science and Data Science. Minors in CS related fields such as Multimedia Authoring and Geographical Information Systems are also available.

Table 3: Course Sequence of Computer Science Degree at Peer Universities

Institution	Sequence	CS1 cr hrs	CS2 cr hrs	CS0
Elon University	CS1 then CS2	4	4	No
Rollins College	CS1 with lab, then CS2	no info	no info	No
Samford University	CS1 then CS2	4	4	No
The Citadel	CS0, then CS1 then CS2	4	3	Required, 2 cr hours
Belmont University	CS1 then CS2.	3	3	beginners & non majors
Stetson University	CS1 then CS2.	1 unit?	1unit?	beginners & non majors
James Madison U.	CS0, choice between 2 CS1 courses, then CS2	3 or 4	3	Yes, 3 credit hours
Berry College	CS1 then CS2	4	3	No
Appalachian State University	CS2 is different type of course	4	4	yes, optional for beginners
Loyola U. New Orleans	CS1 then CS2	3	3	differs from traditional CS0
Christopher Newport U.	CS1 with lab, then CS2	3	3	for non majors
College of Charleston	Choice of CS0, then CS1 then CS2.	3	3	Choice of courses for CS0
Embry-Riddle	no info regarding prerequisites	3	3	No
U. of NC-Wilmington	CS1 then CS2	4	4	for non-majors
Asbury University	No CS degree offered	n/A	n/A	n/A
Bellarmine University	CS0, CS1 then CS2	3	3	Yes, 4 credit hours
John Brown University	No CS degree offered	n/A	n/A	n/A
Univ. of Mary Washington	CS0 or placement exam, then CS1.CS2 is different type of course	4	4	CS0 or placement exam
Florida Southern College	CS0, then CS1 & CS2 combined as 4 hour course	n/A	n/A	required, 4 credit hours
Queens Univ. of Charlotte	No CS degree offered	n/A	n/A	n/A

Some universities, such as Appalachian State University and the University of Mary, Washington, offer a CS2 course that is more an advanced Object Oriented Programming course than a Data Structures course. A data structures course is offered separately. Three of the universities on the ranking list (Asbury University, John Brown University and Queens University of Charlotte) do not offer a CS degree.

In roughly half of the universities the CS0 through CS2 courses are 3 credit hours each, the other half offers CS0 through CS2 courses that are 4 credit hours each. While five of the selected universities do not offer a CS0 course, four require CS0 for non-majors and for beginners. In some universities CS0 is a requirement, in others it is optional or depends on a placement exam. College of Charleston offers its students a choice between different CS0 courses. The number of credit hours for CS0 varies, from 2 credit hours at The Citadel and 3 credit hours at James Madison University, to 4 credit hours at Bellarmine University and Florida Southern College. Florida Southern College takes a completely different approach by combining CS1 and CS2 into a four credit hour course.

Three of the universities, Elon University, Appalachian State University, and College of Charleston, state on their websites that they offer CS1 as well as CS2 in both semesters. Rollins College recommends students to take CS1in the fall and CS2 in the spring. Bellarmine University offers CS1 only in the fall and CS2 only in the spring, while the opposite is true for Berry College, which only offers a minor, but no major in CS.

James Madison University offers four different plans of study. Those plans differ by the time when the students take their GenEd courses and when they take their core CS courses. For example, one plan has the students take mostly GenEd courses during their freshman year and not start taking any CS core courses until their sophomore year. Another plan lets the students take their core courses early on, while the other two plans are variations of the first two. In all four plans of study it is recommended that students take CS1 in the fall semester and CS2 in the spring semester. James Madison University also offers its students a choice between two different CS1 courses. Multiple sections of CS1 are offered in the fall semester and one section of CS2 is offered in the spring semester, while the opposite is true for CS2. CS0 is offered in the fall semester only, with multiple sections being available. The reason why CS1 and CS2 courses are offered in different semesters as well is most likely to allow students who are taking a less traditional route to catch up. These students would include transfer students, students who had either moved ahead or fallen behind, had taken time off from college, had taken CS0, had changed their major or started college in the spring semester instead of the fall semester. Table 3 shows an overview of which university offers CS0, the number of credit hours for CS1 and CS2, and if there is anything special about the sequence in which the courses are offered, for example if there is a choice between multiple CS1 courses.

The other institutions do not provide any information on their websites. Many universities are selective regarding what information about their curriculum they provide on their website. Full information is most likely only accessible to faculty and students through their user accounts.

Experimental Results

Overall, the exam scores dropped by an average of 7.4% from CS1 to CS2. The greatest individual decline in score was by 37.5%. Interestingly, there were eight individuals whose scores actually improved on the CS2 pretest over their CS1 final exam score, while all other students' scores declined or remained the same. When only looking at the students in the spring/fall sequence, the average score dropped by 10%. When looking at the students in the fall/spring sequence, the average score dropped by only 4.3%.

Refer to Tables 4 and 5 for a comparison between the two sequences. Note that the “Delta” column in the tables gives statistics about the change in students scores. So, the Median Delta value gives the median change in final exam and pretest score. The Max Delta value is the maximum difference in score (i.e. the score that showed the worst decline). The Min Delta value is the minimum difference in score. Notice that in both sequences the Min Delta is negative, indicating that there were students in both sequences whose scores actually improved.

Table 4: Fall/Spring Results

	CS1 Final Exam	CS2 Pretest	Delta
Average	83.2%	78.9%	4.3%
Median	85.6%	80.0%	3.1%
Max	105.0%	101.9%	37.5%
Min	60.6%	42.5%	-10.0%
Std Dev	12.6%	16.8%	9.7%

Table 4 shows a comparison of scores on the CS1 final exam to the CS2 pretest for only the fall/spring sequence.

Table 5: Spring/Fall Results

	CS1 Final Exam	CS2 Pretest	Delta
Average	88.7%	78.7%	10.0%
Median	91.3%	79.0%	6.3%
Max	100.0%	100.0%	37.0%
Min	63.8%	58.0%	-2.5%
Std Dev	9.3%	12.4%	10.0%

Table 5 shows a comparison of scores on the CS1 final exam to the CS2 pretest for only the spring/fall sequence.

Using a standard 4.0-scale grade-point average (GPA), the overall GPA dropped from 3.07 on the CS1 final exam to 2.37 on the CS2 pretest (delta=0.7). When only looking at the spring/fall sequence, the GPA dropped from 3.28 to 2.31 (delta=0.97). For the fall/spring sequence, it dropped from 2.84 to 2.44 (delta=0.4). Refer to Figures 1 and 2 for a comparison of the grade distributions for the two sequences.

These results are consistent with our previous study, serving to support and strengthen those results. The main contribution of this portion of this extended study is to eliminate the instructor as an experimental variable. In the previous study, one instructor taught the spring/fall sequence, while a different instructor taught the fall/spring sequence, which left the instructor as an uncontrolled variable. By switching the instructors across the sequences, we have now controlled and eliminated it as a possible factor that might have potentially skewed our previous results.

Figure 1: Grade Distribution – Fall/Spring Sequence

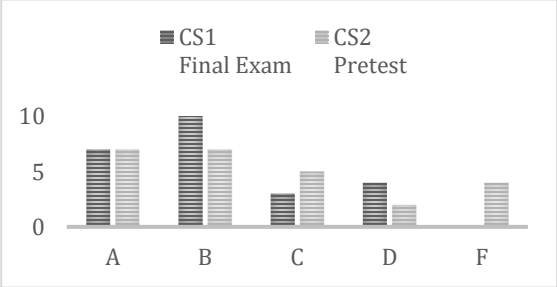
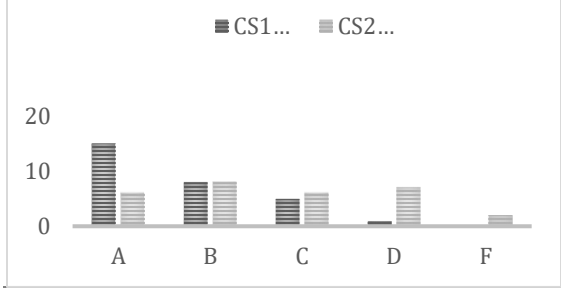


Figure 2: Grade Distribution - Spring/Fall Sequence



CONCLUSION

The quantitative study section of this paper reinforces the previous study by providing supporting evidence that there is a significant decrease in knowledge between the two courses as well as a difference in knowledge retention between the two sequences. This remains even after eliminating differences in instructors for both sequences as a variable.

The survey showed that taking CS0 prepared students only a little for CS1 and that most students do not think it should be a prerequisite. However, students did find the material covered in CS0 to be important, and there were mixed results regarding whether it should be required at all.

The overview of current practices shows that five peer institutions do not offer a CS0 course, while five others only offer it for non-majors and/or beginners.

This research indicates that something needs to be done to improve knowledge retention across introductory programming courses, and offers valuable insight in how the CS1-CS2 sequence is taught at other institutions. What exactly needs to be done is subject to further discussion. The survey provides valuable insight of the perceived importance of CS0, including as a prerequisite for CS1 from the perspective of students. Similarly, the overview of current practices from the perspective of peer institutions also provides valuable insight on ways to improve introductory programming curriculum.

Appendix A
Computer Science Course Sequence Survey

In the current Computer Science curriculum, the introductory course sequence is as follows:

1. CSC 101 Introduction to Problem Solving Using Computers
2. CSC 145 Introduction to Programming
3. CSC 345 Data Structures

The courses are meant to be taken in a sequence. Typically, the courses would be taken as follows:

- CSC 101 would be taken in the Fall (1st semester freshman year)

1) What is your major?

_____

2) Please answer this question only if you received credit for any of the courses via AP credit, dual credit, or transfer credit. Please circle the appropriate option for each course, if applicable:

CSC 101. *Circle one:* AP | dual | transfer
CSC 145. *Circle one:* AP | dual | transfer
CSC 345. *Circle one:* AP | dual | transfer

3) In what semester did you take CSC 101?
O Prior to Fall 2016
O Fall 2016
O Spring 2017
O Fall 2017
O Spring 2018
O I have not taken CSC 101

4) In what semester did you take CSC 145?
O Prior to Spring 2017
O Spring 2017
O Fall 2017
O Spring 2018
O I have not taken CSC 145

5) In what semester did you take CSC 345?
O Prior to Fall 2017
O Fall 2017
O Spring 2018
O I have not taken CSC 345

6) In general, how important to you was the material covered in your CSC 101 class?
O Very unimportant
O Moderately unimportant
O Moderately important
O Very important
O Neutral, unsure, or didn't take CSC 101

7) How well did CSC 101 prepare you for CSC 145?
O It didn't prepare me at all
O It prepared me only a little
O It mostly prepared me
O It prepared me perfectly
O Neutral, unsure, or didn't take CSC 101

8) Do you think that CSC 101 should be a required course for Computer Science majors?
O No
O Yes
O Neutral or unsure

9) Do you think that CSC 101 should be a required prerequisite for CSC 145?
O No
O Yes
O Neutral or unsure

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Ethics Case: So, About Those Fixed Assets…

Robert N. West, Villanova University, Villanova, PA (USA)

ABSTRACT

This short case deals with a situation near year-end in which a company attempts to verify the accuracy of its fixed asset records and the ensuing discussions that take place with top management upon its surprising findings.

Keywords: Ethics, Fixed Assets, Equipment, Ledger, Physical Count, Impairment, Audit

Medical Equipment Maker (MEM) is a wholly owned subsidiary of a mid-size, publicly traded medical device maker. The parent corporation is well-run and financially conservative. Parent bought MEM and one other company three years ago to spur growth. Parent had been quite profitable for years, but it is the dominant player in a mature market and needed new growth opportunities. Parent bought MEM hoping that it would break even or show a profit after the first year. The overall company is profitable, but there is a modest strain because MEM has not yet generated the profits and cash flows that had been expected. In the middle of Q4, MEM management informed Parent that it is on track to meet projections and earn a small profit for the current fiscal year. Although MEM is small, Parent is always asked how MEM is performing during the quarterly conference calls with Wall Street analysts because MEM is working on next generation technology.

Carl has been Controller of MEM for five years. Carl has received sterling performance evaluations every year. The division president, Robert, considers Carl his right hand man. Robert is not a numbers-man, he is a scientist. Robert is not afraid to make the tough calls, such as cutting costs or firing managers who aren't getting the job done. Robert is under a fair amount of pressure to show a profit. Parent has a September 30 year-end. After three quarters, the numbers looked good for MEM. Robert virtually assured the CEO of the company that MEM would show a profit for the fiscal year. July and August had gone according to plan and MEM was well on its way to its first profitable year. The summer is a very busy time for Carl. He has the June 30 quarterly close, budgets due for the next fiscal year, and dealing with people going on vacation, etc. He requested a summer intern and Robert approved the request.

The summer intern was excellent. She got much more done than expected. Carl wanted to get as much out of her as he could. Since he had been with the company, Carl had never really dug into fixed assets. It is a relatively low-activity and low-risk accounting area and he just never had time to "kick the tires." Carl really wanted to know what equipment is being used by Manufacturing, R&D, and the other departments. Since many of the manufacturing technicians work in "clean rooms," Carl doesn't really get to the see the manufacturing operation up close on a regular basis.

Carl requested approval for a fixed asset physical inventory (count), which had not been performed for at least the five years since Carl worked for MEM. Robert and Parent both approved the project. Carl printed out the fixed asset ledger and it showed about 600 pieces of equipment throughout the division with a Net Book Value (NBV) of $6,000,000. The intern used the fixed asset ledger from the Oracle ERP system and attempted to find and tag all 600 of the fixed assets listed in the ledger. The fixed asset ledger was quite difficult to decipher for several reasons. First, many equipment descriptions were vague, such as Miscellaneous Office equipment. Second, MEM was acquired by Parent three years prior, so many of the fixed assets had purchase dates as of the date of the acquisition, not the date the equipment was actually purchased. Fixed assets are often grouped together. For example, if a company buys a table and ten chairs for a conference room, the ten chairs are often grouped as one asset. The same would happen for a large purchase of laptop computers.

In late August, the results of the inventory were tallied. There were $500,000 of fixed assets on the listing that either could not be found or could be found but were not being used. The new Chief Operating Officer (COO) came down very hard on Carl. Why in hell did you have to get religion so close to year-end? We just told the analysts our expected profit for the year. Now we will look like a bunch of fools if we miss by $500,000. Couldn't this project have waited until next year? Carl wanted to say that "you" approved the project, but he thought it best to bite his tongue. Carl also thought of saying that this adjustment is "reality." Shouldn't the financial statements reflect reality, but he bit his tongue on that one too. The COO asked Carl and the corporate CFO what they thought the auditors' reaction would be to this finding. Carl responded that he was not sure. The auditors normally spend

very little time auditing fixed assets at our relatively small subsidiary. It is traditionally viewed as a low-risk audit area. Frankly, they probably have no idea what is going on with fixed assets at our small location. The COO wondered if this finding would cause the auditors to dig deeper at the other divisions. Parent had begun tagging fixed assets earlier in the year, but they had been too busy to finish the physical inventory process. What would they find there? He really had no idea. He truly had no idea what to expect at the large Connecticut division which was just purchased two years ago. The COO finally decided to have Carl break down the $500,000 by categories. Carl's team put significant effort into looking at old invoices and computer reports from previous information systems (two other ERP systems were used prior to Oracle) to come up with the most accurate numbers possible in the time available. Their findings are provided below:

1. Assets that employees were fairly certain had been disposed, $30,000.
2. Assets that had been moved to another division, $170,000, and should be on their books if they are still being used. (they could not be found)
3. Assets that were found, but were not being used, $200,000. One asset in this category had a NBV of $150,000.
4. Assets that were adequately described in the listing, but could not be found, $100,000
5. Per the listing, $1,200,000 of assets could not be tagged because of vague descriptions/purchase dates. It was deemed by Carl that the untagged physical assets had approximately that value.

Required:

1. What do you think the company should do? What is the economic significance of your proposed transaction?
2. What would you do if management decided to be more aggressive than what you think is appropriate?

The Teaching Note is available from the author at Robert.west@villanova.edu

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.
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An example is provided following these instructions.
This style guide represents style guidelines in effect for future issues, but always check for updates online.
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 other than exceptions noted below: 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.
- Absolutely no footnotes or endnotes via footnote or endnote formatting. For footnotes or endnotes, place a number of the footnote in the proper location as a superscript. Then at the end of the paper or bottom of the page, add the footnote as text with a superscript number to correspond to that footnote.
- 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…

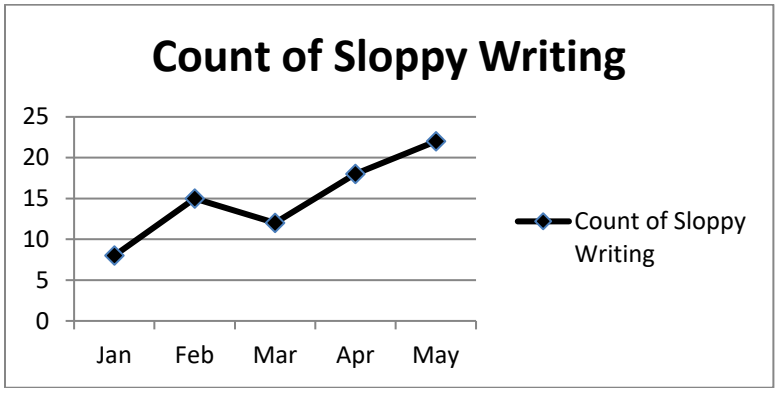
Data Collection (Sub-heading, bold but not all caps, 10 point, aligned left, bold, no line after to paragraph)
The two hundred students were asked to write 2 short papers during the semester…

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)

Clon, E. (2006). Sloppy Writing and Performance in Principles of Economics. *Educational Economics*. V. 14, No. 2, pp 211-233.

Devad, S. and Flotz, J. Evaluation of Factors Influencing Student Class Writing and Performance. *American Journal of Farming Economics*. V. 78, Issue 3, pp 499-502.

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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Endnote: (do not use word footnote or endnote formatting to accomplish this; see comments above)