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PAIRING GRADUATE STUDENTS WITH FACULTY TO CONDUCT BUSINESS RESEARCH: A SOCIAL EXCHANGE MODEL

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ABSTRACT

In academic institutions, collaboration between faculty members and students plays a significant role in producing new knowledge. However, the existing literature does not detail enough practical models specifying how faculty members and students could collaborate to coproduce research at scale. This is especially true at the master's degree level, which is characterized by a scant emphasis on faculty-student knowledge coproduction and a dearth of research methodologies teaching to students. This study describes and examines a scalable model where faculty members from the entire College of Business at Austin Peay State University are optionally paired with master's students taking the Applied Business Research course. The course is taught asynchronously online to master's students during an eight-week term. On an opt-in basis, the class instructor facilitates the initial pairing for both faculty members and students. In each pair, the faculty members act as a mentor guiding the student through the research development process. Mentors and mentees decide on their own whether to resume the collaboration beyond the end of the course, the level of engagement, and the final outcomes of their collaboration. Potential outcomes include publishing a peer-reviewed paper or presenting at an academic conference. Applying a case study qualitative methodology, we interviewed part of the faculty members and the students who went through the model during the past two years and captured their input. We then analyzed their input through the lens of the social exchange theory. Our findings show that the model contributes a viable framework for faculty members and students to collaborate effectively on producing research. Moreover, the model furnishes a practical approach for the students to actively learn through the processes of research development, publication, or presentation at academic conferences. The model can be modified and utilized by other colleges and academic institutions and can open avenues for researchers to examine it further. According to the participating actors, we contribute an empirical record of the model's benefits and challenges experienced by each party. We also include the best practices applied by the participants to collaborate successfully through the model and the suggestions for improvement of the model in the future. Consequently, we enrich the collaboration and mentoring literature streams. Drawing on the social exchange theory as our theoretical framework, our analysis affirms that candidate faculty members and students extrinsically and intrinsically weigh the actual and perceived benefits and costs to decide whether to join the mentorship relationship. Similarly, but with additional a posteriori knowledge about what the collaboration entails, both mentor and mentee apply conscious and

unconscious cost-benefit analysis to make a later determination about resuming the collaboration beyond the end of the course. Additionally, the findings affirm the importance of the institutional support of the model by the whole college. Moreover, we also find that it is crucial and viable to include a built-in continuous process for improvement in the model.

Keywords: *research collaboration, mentoring, research collaboration model, social exchange theory*

INTRODUCTION

In academic institutions, faculty-student collaboration on research constitutes a significant conduit for producing knowledge. This is especially true in doctoral programs (Kamler, 2008), where a student is typically supervised by a faculty supervisor supported by a small committee. Many scholars have examined this dominant collaboration model (see, e.g., Åkerlind & McAlpine, 2017; Boehe, 2016; Wright et al., 2007). In contrast, master's programs are shorter, with less focus on teaching research methodologies and producing knowledge. Consequently, less extant literature covers masters' student-faculty collaboration, coupled with a dearth of collaboration models offered.

Müller (2022) shared an apprenticeship model in which he mentored students to elevate their master theses to a peer-reviewed publishable state. At the doctoral level, Carr-Chellman et al. (2007) illustrated a model where multiple research apprentice classes were offered to the students, with each class led by a single instructor. Ganobcsik-Williams (2006), Lillis (2002), Winch and Wells (1995), and Wingate et al. (2011) presented and advocated embedding academic writing into the curriculum. Obwegeser and Papadopoulos (2016) elaborated upon models involving teaching research in the classroom. Based on a collaborative issue-based learning project, Garde-Hansen and Calvert (2007) reported on developing a research culture among undergraduate students. Typically, extant literature models evolve around a single instructor working with a group of students. The uniqueness of our model lies in its structure, where the instructor of the Applied Business Research course acts as a facilitator to connect students with College of Business (CoB) faculty members. The model furnishes a collaborative experience that is organically infused throughout the entire CoB faculty, where both faculty members and students optionally join the collaboration model.

Furthermore, our model permits a great deal of flexibility and autonomy for each student-faculty pair to decide their level and length of engagement and the final goal of their collaboration, which could lead to producing a presentable or publishable product. The course is taught asynchronously online. Therefore, e-mentoring is used for most papers because many students are not physically on-campus. E-mentoring, whether by email, phone, zoom, or another means, allows students and faculty to interact no matter where they may be (Murphy, 2011).

In this study, we employed a qualitative case study methodology to interview faculty members and students who went through the model about their experiences. We also gathered the reflections of the instructor, who is a member of the research team. Drawing on the social exchange theory (SET) as an interpretive framework, the input from the participants was qualitatively analyzed. The model is a contribution to the practice as a scalable framework for faculty-student collaboration and as an active learning approach for students to participate in knowledge production and conference presentations (Garde-Hansen & Calvert, 2007). We also contribute to the mentoring and collaboration literature by empirically evaluating the model's

benefits, challenges, best practices, and suggestions for improvement. Our model opens avenues for further research and practical enhancements upon utilization.

LITERATURE REVIEW

The Benefits of Faculty-Student Collaboration on Research

Many scholars have studied faculty-student supervisory roles while collaborating on research (Armstrong et al., 2004; Boehe, 2016; Müller, 2022). The practice is important from two perspectives. First, as stated by Åkerlind and McAlpine (2017) and Benmore (2016), students learn by being engaged in research with faculty members. Among many research development activities, the students conduct literature reviews, apply research methodologies, and practice academic writing. Second, faculty are expected to publish research to achieve job retention and promotion (Fine & Kurdek, 1993; Mitchell, 2007; Pinheiro et al., 2014). Accordingly, Carr-Chellman et al. (2007) confirmed that some colleges establish programs to match faculty mentors with students interested in researching, presenting, and publishing articles. In addition to targeting publication in peer-reviewed journals, Lechuga (2011) discussed how some faculty members focus on encouraging students to present at conferences.

Mentoring has been shown to benefit both the mentor and mentee (Allen et al., 1999; Allen et al., 1997; Chao, 1997; Eby & Lockwood, 2005; Ensher et al., 2003; Koberg et al., 1998; Murphy, 2011; Scandura, 1992; Tenenbaum et al., 2001; Whitely et al., 1991). By spending time and effort on teaching and guiding students through research, faculty can publish in peer-reviewed journals and strengthen their stance regarding promotions and competitive research funding (Kamler, 2008; Pinheiro et al., 2014). Another benefit to faculty is the intrinsic positive and rewarding feeling they acquire in passing on their knowledge to students (Kram, 1983; Murphy, 2011; Ragins & Scandura, 1999). It is beneficial for students to get used to receiving and acting on criticism and for faculty to learn how to deliver feedback effectively without discouraging or disengaging the mentee (Aitchison et al., 2012; Caffarella & Barnett, 2000; Kamler, 2008; Sanscartier & Johnston, 2021). Within the larger community, Montonen et al. (2021) considered the college's grooming of future researchers as a positive societal impact.

Engaging in collaborative research allows the students to experience working in a team environment. This provides the opportunity to navigate the challenges related to working with people (Montonen et al., 2021; Pinheiro et al., 2014), such as how to communicate with others, apply critical thinking (Müller, 2022), keep commitments, and meet deadlines. Students learn to research and write at a higher level to make their work publishable in peer-reviewed journals (Mitchell, 2007). Whether the student plans to continue their academic career or transfer into the workforce, these learned relational and networking capabilities can help students gain valuable skills to succeed throughout their academic, career (Cunningham et al., 2022), and personal lives. As such, Montonen et al. (2021) encouraged colleges to find ways to implement collaborations between students and faculty to benefit both parties.

The Challenges Facing Collaborative Research

Some challenges arise during these faculty-student collaborations. Faculty members have multiple roles besides teaching classes, including research projects, departmental assignments, advising, and committees (Pinheiro et al., 2014). Students can have other classes, extracurricular

activities, and jobs that take up their time. Consequently, a widely expressed difficulty is for faculty and students to allocate enough time to do collaborative work and maintain communication (Montonen et al., 2021; Müller, 2022). It takes significant effort to advise and encourage students to go through the challenging research process and elevate their writing styles to meet publication standards (Kamler, 2008; Pinheiro et al., 2014). Whereas some colleges create manuals that guide faculty through the mentoring process (Chaparro & Cyrus, 2021), many mentors improvise. One best practice includes using a scaffolding method to teach the research, writing, presenting, and publishing processes, as well as setting clear expectations with students about what they should contribute (Jones & Lerner, 2019; Walkington et al., 2020).

Effective communication is a crucial element for successful faculty-student collaboration. However, due to the asymmetrical faculty-student relationship, mentees may hesitate to seek help from mentors. To mitigate this issue, (Murphy, 2011) affirmed that students who received prompt feedback were more comfortable using their mentor to guide them. As such, a collaborative experience is enhanced when mentors proactively endeavor to establish and maintain communication channels. A related challenge is mismatched expectations (Ragins, 1997; Tenenbaum et al., 2001; Thomas, 1990). These may stem from poor communication, especially in the case of e-mentoring, where the likelihood of miscommunication is more likely due to the absence of non-verbal cues to aid in understanding, delays in the timeliness of email, inability to communicate well in writing, or reluctance to ask for clarification (Eby et al., 2000; Ensher et al., 2003; Sproull & Kiesler, 1986).

The initial task of motivating the students and faculty to participate is a predominant challenge, especially in a master's program where students are in college for a short time (Ingraham et al., 2018; Müller, 2022). The pairings become difficult if not enough faculty members or students are interested or willing to participate. Mentoring requires a dedicated effort (Murphy, 2011; Ragins & Scandura, 1999). Hence, faculty members may not be willing to participate due to their course load or other fast-approaching deadlines for other research commitments or committees they serve on. Students may not be ready to join in these pairings due to other classes or jobs outside of college, or they may not understand the importance of participating in research projects or the skills they can obtain. The quick turnover of students in master programs poses a challenge to these pairings because students are in college only for a short period, so completing an additional research project may not be possible before they graduate. Adams (2019) and Morales et al. (2017) promoted forming deeper and longer-lasting relationships to go through the lengthy publishing process. Specifically related to our study, where the Applied Business Research course is taken online, (Ensher et al., 2003) stated that relationship building is typically slower when done online, which is a considerable challenge.

THE SETTING OF THE MODEL

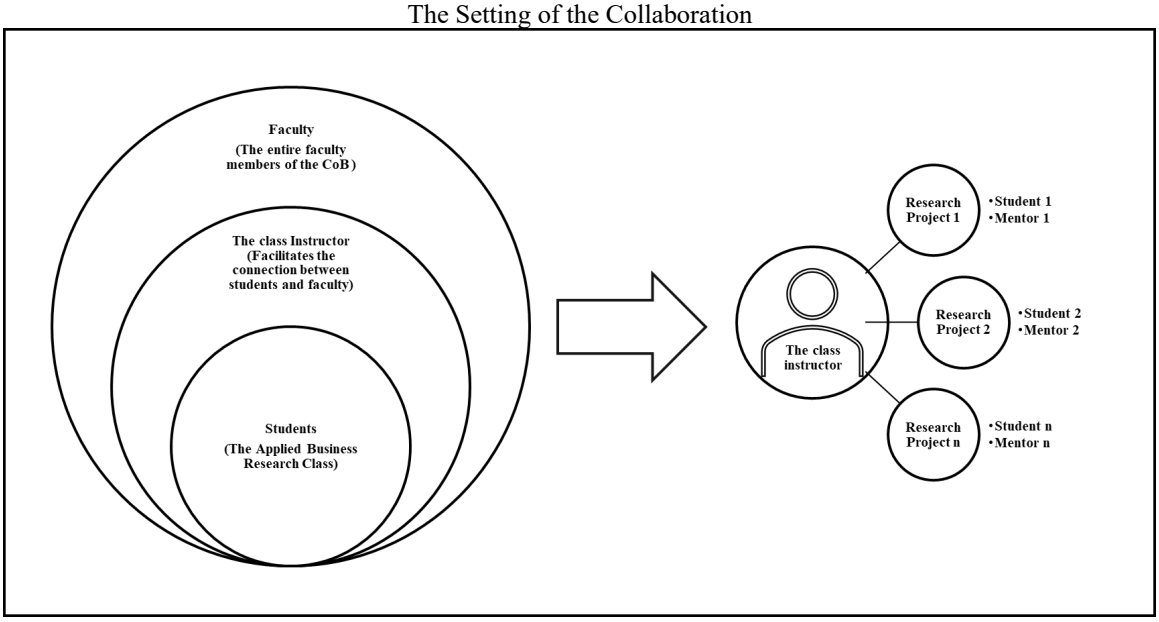
The context of the model revolves around the Applied Business Research course (MGT 5000) taught asynchronously online in the CoB at Austin Peay State University (APSU). This eight-week masters-level course aims to train students how to write a research proposal for a potentially presentable or publishable paper. Initially, the students' knowledge and experience with research methodologies range from thin to none.

At the beginning of the course, the instructor—a member of the research team—asks the students to propose their research topics or to choose from topics submitted by the CoB faculty whose self-interest is to advance their research portfolio. The topics proposed by the students are

presented to the CoB faculty. If a faculty member is interested in a topic, the class instructor initiates the establishment of a mentoring connection with the student (Figure 1). If the student agrees to be mentored, the student proceeds to collaborate directly with the mentor while continuing to submit drafts and deliverables to the instructor following the cadence of the course schedule.

During the eight-week course, the mentor acts as the primary source of input/guidance to the student. The student's job is to develop a partial research proposal comprising an abstract, introduction, literature review, suggested methodology, theoretical framework, and list of references cited in the manuscript. The mentor sets the expectations and level of engagement with the consensus of the mentee. If both approve, the mentor and mentee may continue the collaboration beyond the end of the course. In such a case, some mentors convert the proposal into a full-blown research paper and some co-present with the student at a conference. Some projects are at different stages of development or publication path, and some projects continue to be work-in-progress or even abandoned altogether. Some of the resulting papers are submitted for publication or presented at conferences.

Figure 1
The Setting of the Collaboration



In summary, our model attempts to match willing faculty mentors and students to write a research paper as a mutually beneficial project for each participant. The model is a flexible utilitarian framework that seeks to enrich the student's learning experience and furnish a conduit to support the faculty research agenda. Against this backdrop, we examine the rewards, challenges, best practices, and opportunities for improvement in mentoring and supervising student research within the model described.

RESEARCH DESIGN

Espousing an interpretive epistemological stance where reality is seen as socially constructed (Ali et al., 2017; Charreire Petit & Huault, 2008), we first reviewed the literature streams that cover mentoring and research supervision. We then proceeded to conduct a qualitative study where quality is defined by the rigor of the methodology and the plausibility of the argument presented (Myers, 2019). We interviewed eight students and seven faculty members from the CoB at APSU. All eight students had completed the Applied Business Research course and opted in to be mentored by a faculty member from the CoB. Each of the seven faculty members mentored at least one student between August 2020 and August 2022. The reflections of the researchers augmented the empirical data. The first researcher is the Applied Business Research course instructor, who has taught this course since 2020. The second researcher is a CoB librarian embedded in the course since 2020 as a resource for the students. And the third researcher is a student who had undergone the mentoring experience.

Each interview lasted for about 45 minutes. Interviews were transcribed and then coded by three researchers who went through three iterations of intercoder reliability exercises to attain a reliability score of more than 85% (Lombard et al., 2002; Zaar et al., 2020). Then, using open coding (Myers, 2019), 24 and 18 categories were identified from the faculty and students' transcripts, respectively. In the second stage, we narrowed the categories down to 13 and 9 using axial coding to define our conceptual constructs (Charmaz, 2014; Glaser, 1978). Then, guided by SET as our interpretive framework, we applied theoretical coding (Urquhart et al., 2010) to formulate six codes comprising 1) benefits to the mentor, 2) benefits to the student, 3) challenges to the mentor, 4) challenges to the student, 5) best practices applied, and 6) suggestions for improving the model.

To attenuate any biased feedback because the interviewees were colleagues and former students, we emphasized the importance of sharing the bad aspects of their experience to help improve the model and course in the future. To minimize any unintended bias in the interpretations (Van de Ven, 2007), especially given that two of the researchers (i.e., the course instructor and the embedded business librarian) were leading the course being studied, we endeavored through self-reflection coupled with checks by the other two researchers to eliminate these biases. To garner the students' trust and empower them to share their honest thoughts, we interviewed only students who had already completed the course and received their grades. Furthermore, when the interviews were coded by the first three researchers, we ensured that the coder was not the same person as the interviewer, so the transcript was coded without bias.

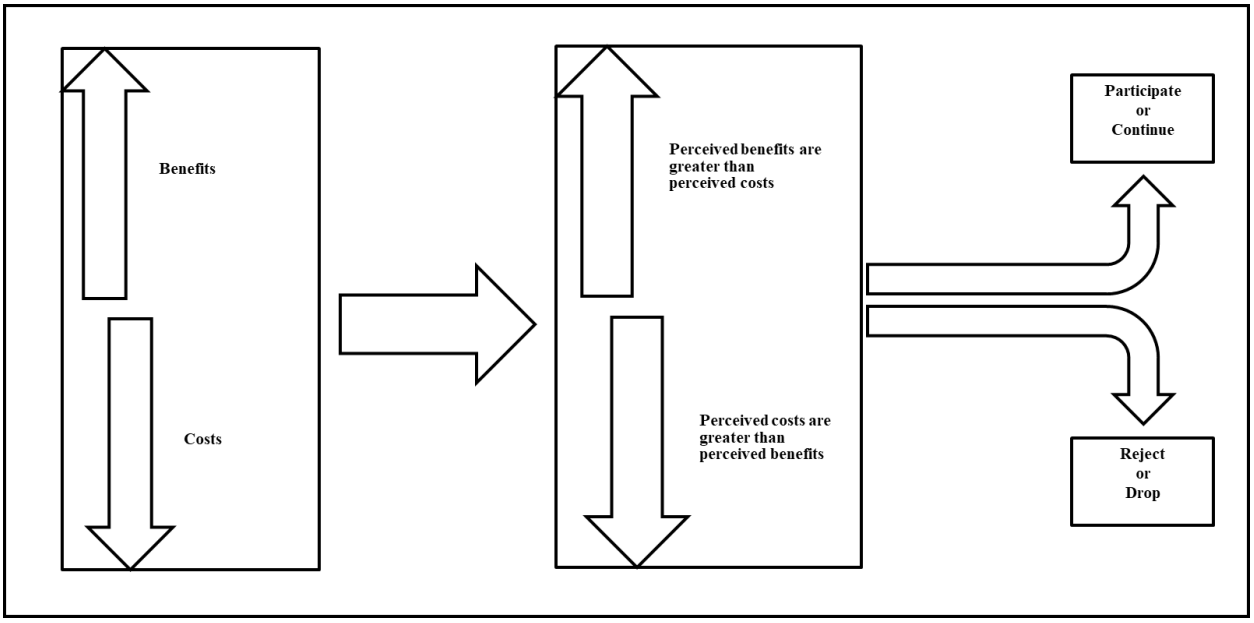
SOCIAL EXCHANGE THEORY

SET assumes that actors transact out of self-interest, with no bargained commitments, to achieve shared goals that are attainable through an interdependent effort (Blau, 1964; Lawler & Thye, 1999; Nord, 1969). As such, SET is a suitable theoretical framework for investigating a case study that involves mentorship (Ensher et al., 2001; Murphy, 2011; Olian et al., 1993; Richard et al., 2009; Tepper & Taylor, 2003). Coerced acts or acts performed to conform to social norms are exempt from being a social exchange (Blau, 1964; Nord, 1969). Therefore, the nonobligatory nature of the socially exchanged relations fits our model, where the mentor and the mentee do not have predefined commitments.

The course instructor introduces the actors to one another and leaves it up to them to specify how much time they want to invest and to set up their goals. Mentoring is a reciprocal exchange relationship (Richard et al., 2009; Young & Perrewe, 2000; Young & Perrewé, 2004). In our model, the mentor sets the level of engagement, provided the mentee is willing to meet that expectation. Richard et al. (2009) posited that in SET, actors establish relationships in which the benefits outweigh the costs. In our model, there were instances where nothing was accomplished and other situations where a paper was co-submitted to a journal for publication. The researchers used SET to interpret the model output by assuming that participating actors, consciously or unconsciously, have applied a cost-benefit analysis to the inter-relationships (Ward & Berno, 2011) (Figure 2).

Emotionally driven by the desired social exchange outcome (Lawler & Thye, 2006; Scheff, 1990), after the end of the course, the mentor and mentee may continue the collaboration if both agree. In such a case, some mentors converted a proposal to a full-blown academic journal or conference paper. Depending on the level of motivation and expectations (Adams, 1965; Festinger, 1954; Nord, 1969), the student may or may not continue the collaboration beyond the end of the course. The likelihood of continuing to collaborate is affected by the actor's values and inter-relationship characteristics (Richard et al., 2009).

Figure 2
The Cost-Benefit Balance



FINDINGS

We analyzed the data from our interviews through the lens of SET. We detail the findings in the following five subsections.

Benefits to the Mentor

As an end in itself, the experience of working with the students brought joy to many of the mentors. This sentiment was expressed in phrases such as "*getting to know the students is something that makes me feel good.*" Some faculty members described the collaboration as a learning experience due to fruitful discussions with the students about new topics. The student was a source of a different perspective that could identify nuances in the research that might not have been picked up by faculty members working among themselves. The gap of experience between the mentor and mentee was seen as beneficial to some mentors because "*as an experienced researcher, I tend to do what I know to do, but if I mentor someone, I will stop and ask, why am I doing this, so they make me slow down and kind of think fundamentally about certain things sometimes.*"

The model furnished a foundation for supporting the faculty research agenda. The students enriched the faculty research portfolio by offering a menu of research questions to select from. In addition, a significant benefit stated by mentors was the legwork performed by the student. Under the guidance of the mentor and the course instructor, during the eight-week course, the student was required to provide a partial research proposal comprising an abstract, introduction, literature review, suggested methodology, theoretical framework, and list of references cited in the manuscript. Moreover, some students already had "*excellent writing skills,*" which was helpful in the writing and editing processes.

Benefits to the Mentee

Developing a research proposal in collaboration with a faculty member was a new experience for most of the master-level students. As such, it was a self-fulfilling learning experience that could enrich their future careers or support the pursuance of advanced academic degrees. In addition, published or presented papers significantly improved students' resumes. Additionally, a mentee pointed out the intrinsic value of getting used to working with mentors since "*in the real world, one becomes more effective by using mentors.*"

Compared to the individual student papers, our collaboration model was "*a more engaging way of learning and researching*" that produced "*better outcomes.*" At a personal level, the model formed a bridge where students got to know the faculty at a closer level. Some students said they "*felt honored to be paired with a faculty member.*" The students' class papers benefited from the added rigor due to the ideation sessions, suggestions, and guidance provided by the mentor. As experts in the research development process as well as in the context of business, the mentors helped the students manage the scope of their projects and focus on the research question. Moreover, the students learned to identify a problem and conduct an intensive literature review that verified the novelty of the intended contribution and supported the argument of the paper. Not only did the mentors provide support and guidance, but they also represented an audience for the students to ensure they were moving in the right direction.

Table 1
SUMMARY OF RECORDED BENEFITS TO THE ACTORS

Benefit	Beneficiary	Initial or Continuation Attraction
An intrinsic joy of collaborating and getting to know others	Both	Both
A learning experience	Both	Both
Richer perspective resulting in a better outcome	Both	Continuation
Source of ideas for the faculty research agenda	Mentor	Initial
Legwork completed	Mentor	Initial
A significant achievement for the resume	Mentee	Initial
A preparatory step toward a doctorate degree	Mentee	Continuation
Learning to use mentors effectively	Mentee	Continuation
Added guidance and support throughout the course	Mentee	Initial

Challenges to the Mentor

All mentors reported that allocating the time to collaborate with the mentee was a significant challenge. For some, it was the only challenge, stating, "*I don't think there are any challenges other than time.*" It took time to meet with the mentee in person or virtually, and it took a long time to review the various versions of the manuscript and provide quality input and guidance. The short duration of the course made it more difficult to schedule enough mentoring sessions during that time. Some faculty members stated their preference to meet face-to-face with the mentees, but it was difficult to do so during the COVID-19 pandemic. With this course being taught asynchronously online, mentors reported it was "*difficult getting to know them*."

Due to insufficient prior exposure, many students lacked basic research writing skills, necessitating the faculty to provide heavy editorial input. In addition, some were inclined to "*interject things that they believe to be true*" and make grand statements without supporting evidence from the literature. The quantitative sections of the papers in the literature and the need to work sometimes with statistics challenged many mentees. Furthermore, some students lacked self-confidence in their skills, and it took a motivational effort to "*convince them that they had something to add and bring to the table.*"

Students liked to tackle big problems. As they developed their proposal, they tended to broaden its scope and expand it to include additional problems. In their endeavor to address multiple research questions, they ended up losing focus. The faculty spent significant effort convincing them that they should not try to "*solve the world's problems in one paper and focus on a single problem.*"

Challenges to the Mentee

While collaborating with their mentors, the students were also following the cadence of the course, submitting draft versions and other assignments, and receiving continuous input from the course instructor. Consequently, some of the mentees were confused about "*how much it was a course proposal and how much it was the rough draft for a publishable paper.*" With the expedited course process during the eight-week term, the writing of the proposal felt "*heavy on the mind,*" leading to a sense of exhaustion and anxiety in some students. The subject matter was sometimes complex. The students found it hard to find relevant literature for newly emerging topics. For well-researched topics, the students found it challenging to sift through the abundance of information and identify what could be considered a novel contribution to the body of knowledge. Some students doubted their "*confidence in self*" when comparing their knowledge and experience to their mentors.

Table 2
SUMMARY OF RECORDED CHALLENGES TO ACTORS

Challenged	Sufferer	Initial or Continuation Hindrance
Allocating time	Both	Both
Responsiveness and motivation	Both	Continuation
Sufficiency of skills	Mentor	Continuation
Unsupported claims	Mentor	Continuation
Lack of confidence	Mentee	Initial
Scope creep	Mentor	Continuation
Duality of responsibility	Mentee	Initial
The expedited course process	Both	Initial
Finding relevant literature sources	Mentee	Both
Identify contribution to the body of knowledge	Mentee	Initial

Finding time to collaborate with the mentor was challenging for the students, especially during the eight-week course. Students took multiple courses during the term, and many were full-time employees, making it difficult to "*balance the personal and professional lives along with the academic demands.*" The students also recognized that the mentors were busy with other demanding tasks, resulting in the abortion of some of the collaborative experiences. Therefore, they "*had to rely on electronic correspondence, and everyone did not always check theirs daily,*" leading to communication issues. Despite the need for assistance, some students felt that reaching out to the mentor for help was unacceptable, and they waited for the mentor to initiate the communication.

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with the academic demands." The students also recognized that the mentors were busy with other demanding tasks, resulting in the abortion of some of the collaborative experiences. Therefore, they "*had to rely on electronic correspondence, and everyone did not always check theirs daily,*" leading to communication issues. Despite the need for assistance, some students felt that reaching out to the mentor for help was unacceptable, and they waited for the mentor to initiate the communication.

Table 2 summarizes the challenges to both mentors and mentees while they were collaborating through the model.

Best Practices Applied

It was helpful to participants to dedicate time to work, exchange emails, and frequently meet in person or virtually to ideate, check on status, and provide input. This was also important to enable coaching and motivation by the mentor to maintain students' sense of heightened self-esteem. A way to achieve that was to allow the student to drive the ideas because, in this way, "*they feel more invested in the process and the outcome.*" Accordingly, the student endeavored to acquire a deep understanding of the subject matter and develop and express their findings. One mentor stated that challenging the mentee bought out the best in him and a sense of rallying together. The positive feelings of one mentee continued even "*after the paper was done*" because her mentor expressed that "*she was very impressed with the outcome, especially from someone who has never done a business study before.*" Another student stated, "*I was very encouraged by my mentor, and I was so happy the business research paper I wrote had a successful outcome.*" Even when the mentees were not engaged after the course ended, they wanted to be kept informed about the project's progress.

It was effective to build a timeline and outline the paper early on, unbundling the process into smaller chunks. One mentor stated, "*I tried to be very specific about what needed to be done that week, so I am taking more of a step-by-step process.*" Applying a division of labor based on expertise was helpful when multiple faculty members worked with a single student. It was helpful to remember to utilize the available resources when mentors were busy. Examples were the writing center for help with editorial support and the business librarian embedded in the course, who was an excellent resource for finding sources and how to reference and cite them.

Establishing agreed-upon expectations and boundaries early in the collaboration process was essential. One mentor told the student, "*I will mentor you directly, in the sense of giving you feedback on the paper, but I am not going to write it for you.*" There were many effective means of providing feedback. Some mentors offered general input during the course and then engaged heavily to transform the proposal into a publishable paper only after the course was over. In this sense, the students drove the initial research project, while the mentor helped to refine it and drive it to the destination. Although the students had no prior training in research methodologies, they were asked to take a stab at it. A mentor selected which journal to submit the paper to or which conference to attend. He asked the mentee to read the style guide and adjust the original document accordingly. In the case of a conference, the mentee was asked to complete the first draft of the presentation.

Table 3 SUMMARY OF RECORDED BEST PRACTICES	
Best Practice	Actor
Dedicate time to work on the collaboration	Both
Meet and communicate frequently	Both
Empower the mentee to drive the project	Mentor
Provide motivation and encouragement	Mentor
Utilize available resources	Mentee
Establish expectations and boundaries	Mentor

DISCUSSION

It is essential to improve the model continuously. As such, we asked the participants to provide suggestions and ideas. One suggestion was to provide a detailed standardized research template for the students to follow in order to streamline the conversion of the proposals into papers. Whereas some of the mentees expressed appreciation for the flexibility and freedom allowed by the instructor, others stated a preference for more detailed guidelines. Another idea was to assign multiple students to a single project, which could result in a more solid literature review and overall research proposal. One of the mentors said she "*would love to see something like this implemented early at the undergraduate level*, *especially for high achievers*." Paradoxically, another faculty member recommended delaying the offering of the course because it is currently one of the first courses that graduate students take, and some of them have not been to college in many years. Hence, writing a research proposal or working with a professor could sound scary.

Some mentors indicated their preference to see "*all or more of the faculty participate in the model because I think it's engaging and beneficial for the students.*" It is worth noting that existing support was available at the college level for which engagement with students in intellectual activities was rewarded. However, many faculty members indicated the need for more robust institutional support at the college level rather than leaving it to collegial interrelations between the instructor and the faculty.

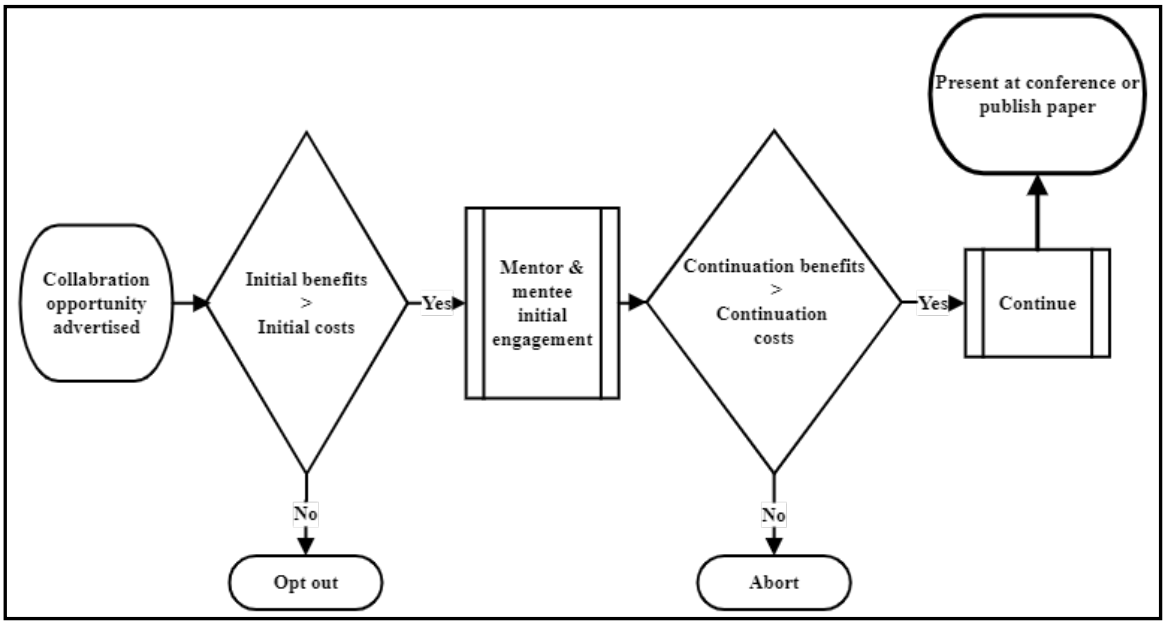
Some mentees suggested that the rules of engagement should be further clarified. Many students expressed the need to increase the duration of the course or split the deliverables over two terms. Another mentor wished to poll the students to identify those interested in pursuing a doctoral degree and offer them a second part in another term. This would allow these students to contribute more towards the tasks leading to a conference presentation or a paper publication.

Table 4 SUMMARY OF SUGGESTIONS FOR IMPROVEMENT	
Suggestion for Improvement	Actor
Offer a detailed standardized research template	Instructor
Allow the pooling of multiple students into a single project	Instructor
Adjust when the course is offered within the curriculum	Institution
Encourage all or more faculty participation	Institution
Secure robust institutional support	Institution
Clarify the rules of engagement from the onset	Instructor and Mentors
Increase course duration or split it into two courses	Institution
Offer an advanced portion of the course to students with Ph.D. aspiration	Institution

To date, the outcomes of the collaborations between the mentors and mentees are at different phases of progress. Some papers have been published or submitted for publication, some were presented at conferences, and others were abandoned after completing the course. Some faculty continued to collaborate with the students after the course ended, whereas others took over and continued to work on the project on their own or with another colleague.

Decision Junctures

Figure 3
Junctures of Decision-Making



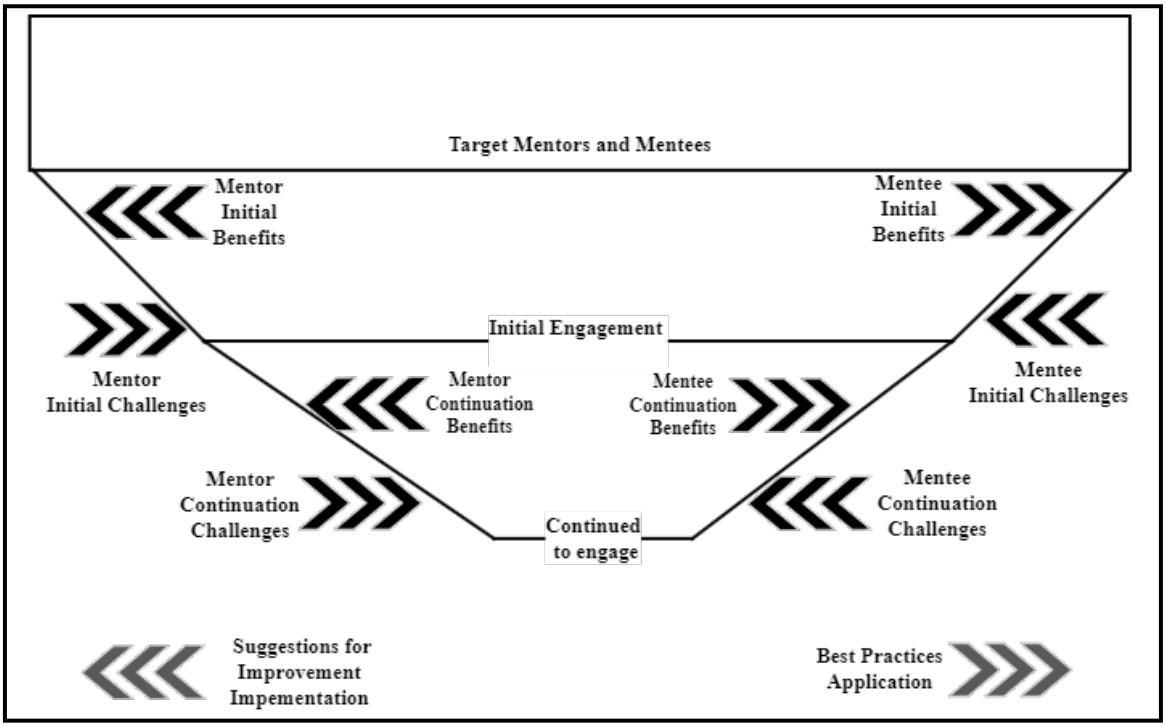
There are two decision junctures for both the mentor and mentee (Figure 3). Initially, each mentor and mentee weigh the costs versus the benefits of entering a collaborative relationship. Their assessment is based on a preconceived a priori knowledge of what would be involved in the relationship and the expected outcomes. Thus, when the social exchange benefits are perceived to outweigh the costs, the actor enters the collaboration. After the faculty-student pair resume the collaboration beyond the course, each gain more detailed a posteriori knowledge related to the endowments of the other partner, their level of commitment, the likelihood of a successful outcome, and the newly injected priorities from academic, career, or personal life. Accordingly, each actor decides whether to resume the collaboration beyond the course.

Practical Implications of the Model

To attract more participation in the collaboration model and maximize the outcome, the model should continuously be adjusted to increase the actual and perceived benefits and decrease any repulsive costs incurred by actors. Figure 4 depicts a staged-funnel effect where a portion of the target actors initially opts in depending on their perceived value of the intended collaboration experience. Then, a smaller number of the initial participants pass through the second stage of the funnel by deciding whether to continue collaborating beyond the course.

In Figure 4, the top arrows pointing outward represent the perceived attractive initial benefits to the collaborators. Contrarily, the top arrows pointing inward represent the initial challenges perceived by the collaborators. The bottom arrows pointing outward constitute the conscious efforts taken by the institution and the instructor to improve the model. These efforts maximize the model's value, affecting the initial decision and whether to continue to participate. Nonetheless, all actors run their own cost-benefit analyses based on their unique perspectives, surrounding circumstances, and priorities. Along these lines, it is critical to present the model's menu of benefits in an easy-to-fathom format because people have bounded rationality that limits how they consume, store, and process information (Simon, 1955).

Figure 4
A Staged Funnel Depicting the Need for Benefits Maximization and Costs Minimization



Moreover, some of the benefits and costs can change due to the shifting dynamics in the ecosystem surrounding the model and the actors. Accordingly, it is essential to continue revising the overall ecosystem's cost-benefit analysis, including polling the actors to document and implement best practices and suggestions for improvement.

LIMITATIONS

We acknowledge the difficulty in obtaining unbiased feedback when the participants were colleagues and former students. We sought to minimize any potential bias by overstating to the participants how our research quality relied entirely on their anonymous candid input. Moreover, the course instructor and the embedded business librarian of the course were members of the research team. This could have been another possible source of bias. We attenuated these biases by practicing self-reflection and through the scrutiny by the other two researchers. The benefits and challenges listed reflect the participants' perceptions and should be augmented with additional analyses to incorporate the entire ecosystem surrounding the model, including the institutional elements.

The model is based on an online eight-week applied business research course and should be calibrated for its application to different settings. Moreover, many of the APSU CoB graduate students were military veterans. Accordingly, adjustments might be required to generalize or apply the model at a college with a different mix of students. Also, the APSU CoB is currently

pursuing the Association to Advance Collegiate Schools of Business (AACSB) accreditation, resulting in the administration focusing on that goal instead of supporting novel ideas and models.

CONCLUSION

We describe and examine a model for faculty-student collaboration to produce new knowledge. Despite the challenges presented by the model, on balance, the participants benefited from the experience. The model can open opportunities for colleges to enrich their students' active learning and expand the faculty's research portfolio. Through the lens of SET, the model has a built-in improvement mechanism to continuously maximize a favorable cost-benefit for both mentors and mentees.

Future research should examine the model in different environments with various modifications. This can include colleges with other mixes of population. This study utilized only two years of empirical experience. Given that the outcome of conducting research tends to lag the initial engagement by months and years, future research may apply longitudinal quantitative analysis with a focus on the results attained.

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REFERENCES

Adams, J. S. (1965). Inequity in social exchange. *Advances in Experimental Social Psychology* (Vol. 2, pp. 267-299). Elsevier. https://doi.org/10.1016/s0065-2601(08)60108-2

Adams, S. K. (2019). Empowering and motivating undergraduate students through the process of developing publishable research. *Frontiers in Psychology, 10*, 1007. https://doi.org/10.3389/fpsyg.2019.01007

Aitchison, C., Catterall, J., Ross, P., & Burgin, S. (2012). 'Tough love and tears': Learning doctoral writing in the sciences. Higher Education Research & Development, 31(4), 435-447. https://doi.org/10.1080/07294360.2011.559195

Åkerlind, G., & McAlpine, L. (2017). Supervising doctoral students: Variation in purpose and pedagogy. *Studies in Higher Education, 42*(9), 1686-1698. https://doi.org/10.1080/03075079.2015.1118031

Ali, A., Warren, D., & Mathiassen, L. (2017). Cloud-based business services innovation: A risk management model. *International Journal of Information Management, 37*(6), 639-649. https://doi.org/10.1016/j.ijinfomgt.2017.05.008

Allen, T. D., McManus, S. E., & Russell, J. E. (1999). Newcomer socialization and stress: Formal peer relationships as a source of support. *Journal of Vocational Behavior, 54*(3), 453-470. https://doi.org/10.1006/jvbe.1998.1674

Allen, T. D., Poteet, M. L., & Burroughs, S. M. (1997, 1997/08/01/). The mentor's perspective: A qualitative inquiry and future research agenda. *Journal of Vocational Behavior, 51*(1), 70-89. https://doi.org/10.1006/jvbe.1997.1596

Armstrong, S. J., Allinson, C. W., & Hayes, J. (2004). The effects of cognitive style on research supervision: A study of student-supervisor dyads in management education. *Academy of Management Learning & Education, 3*(1), 41-63. https://doi.org/10.5465/amle.2004.12436818

Benmore, A. (2016). Boundary management in doctoral supervision: How supervisors negotiate roles and role transitions throughout the supervisory journey. *Studies in Higher Education, 41*(7), 1251-1264. https://doi.org/10.1080/03075079.2014.967203

Blau, P. M. (1964). *Exchange and power in social life. Piscataway*. NJ: Transaction Publishers. https://doi.org/10.4324/9780203792643

Boehe, D. M. (2016). Supervisory styles: A contingency framework. *Studies in Higher Education, 41*(3), 399-414. https://doi.org/10.1080/03075079.2014.927853

Caffarella, R. S., & Barnett, B. G. (2000). Teaching doctoral students to become scholarly writers: The importance of giving and receiving critiques. *Studies in Higher Education, 25*(1), 39-52. https://doi.org/10.1080/030750700116000

Carr-Chellman, A. A., Gursoy, H., Almeida, L., & Beabout, B. (2007). Research apprenticeships: A report on a model graduate programme in instructional systems [Article]. *British Journal of Educational Technology, 38*(4), 637-655. https://doi.org/10.1111/j.1467-8535.2006.00647.x

Chao, G. T. (1997). Mentoring phases and outcomes. *Journal of Vocational Behavior, 51*(1), 15-28. https://doi.org/10.1006/jvbe.1997.1591

Chaparro, S., & Cyrus, J. (2021, 2021). Mentoring graduate students: Teaching them how to fish for real. https://commons.emich.edu/cgi/viewcontent.cgi?article=1006&context=loexconf2021

Charmaz, K. (2014). *Constructing grounded theory*. Sage. https://toc.library.ethz.ch/objects/pdf03/e01_978-0-85702-914-0_01.pdf

Charreire Petit, S., & Huault, I. (2008). From practice-based knowledge to the practice of research: Revisiting constructivist research works on knowledge. *Management Learning, 39*(1), 73-91. https://doi.org/10.1177/1350507607085173

Cunningham, K., McCarthy, V., & Tilooby, A. (2022). Business education and the development of feedback skills: The impact of student peer review assignments. International Journal for Business Education, 163(1), 3. https://doi.org/10.30707/IJBE163.1.1664051448.722379

Eby, L. T., & Lockwood, A. (2005). Protégés' and mentors' reactions to participating in formal mentoring programs: A qualitative investigation. *c, 67*(3), 441-458. https://doi.org/10.1016/j.jvb.2004.08.002

Eby, L. T., McManus, S. E., Simon, S. A., & Russell, J. E. (2000). The protege's perspective regarding negative mentoring experiences: The development of a taxonomy. *Journal of Vocational Behavior, 57*(1), 1-21. https://doi.org/10.1006/jvbe.1999.1726

Ensher, E. A., Heun, C., & Blanchard, A. (2003). Online mentoring and computer-mediated communication: New directions in research. *Journal of Vocational Behavior, 63*(2), 264-288. https://doi.org/10.1016/s0001-8791(03)00044-7

Ensher, E. A., Thomas, C., & Murphy, S. E. (2001). Comparison of traditional, step-ahead, and peer mentoring on protégés' support, satisfaction, and perceptions of career success: A social exchange perspective. *Journal of Business and Psychology, 15*(3), 419-438. https://doi.org/10.1023/a:1007870600459

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*(2), 117-140. https://doi.org/10.1177/001872675400700202

Fine, M. A., & Kurdek, L. A. (1993). Reflections on determining authorship credit and authorship order on faculty-student collaborations. *American Psychologist, 48*(11), 1141-1147. https://doi.org/10.1037/0003-066X.48.11.1141

Ganobcsik-Williams, L. (2006). General introduction: Responding to the call for academic writing theory and pedagogy. *Teaching Academic Writing in UK Higher Education: Theories, Practices and Models. Basingstoke, Hampshire: Palgrave Macmillan*. https://books.google.com/books?hl=en&lr=&id=v_GGAwAAQBAJ&oi=fnd&pg=PP1&dq=Charmaz,+K.+(2014).+Constructing+grounded+theory.+Sage.&ots=YXYsJ9ACd1&sig=sawIlD-pSo6JHn4yb5fTT0TgISA

Garde-Hansen, J., & Calvert, B. (2007). Developing a research culture in the undergraduate curriculum. *Active Learning in Higher Education, 8*(2), 105-116. https://doi.org/10.1177/1469787407077984

Glaser, B. G. (1978). *Theoretical sensitivity*. University of California. https://eduq.info/xmlui/handle/11515/17665

Ingraham, K. C., Davidson, S. J., & Yonge, O. (2018). Student-faculty relationships and its impact on academic outcomes. *Nurse Education Today, 71*, 17-21. https://doi.org/10.1016/j.nedt.2018.08.021

Jones, C. K., & Lerner, A. B. (2019). Implementing a course-based undergraduate research experience to grow the quantity and quality of undergraduate research in an animal science curriculum. *Journal of Animal Science, 97*(11), 4691-4697. https://doi.org/10.1093/jas/skz319

Kamler, B. (2008). Rethinking doctoral publication practices: Writing from and beyond the thesis. *Studies in Higher Education, 33*(3), 283-294. https://doi.org/10.1080/03075070802049236

Koberg, C. S., Boss, R. W., & Goodman, E. (1998). Factors and outcomes associated with mentoring among health-care professionals. *Journal of Vocational Behavior, 53*(1), 58-72. https://doi.org/10.1006/jvbe.1997.1607

Kram, K. E. (1983). Phases of the mentor relationship. *Academy of Management Journal, 26*(4), 608-625. https://doi.org/10.2307/255910

Lawler, E. J., & Thye, S. R. (1999). Bringing emotions into social exchange theory. *Annual review of sociology*, 217-244. https://doi.org/10.1146/annurev.soc.25.1.217

Lawler, E. J., & Thye, S. R. (2006). Social exchange theory of emotions. *Handbook of the Sociology of Emotions*, 295-320. https://doi.org/10.1007/978-0-387-30715-2_14

Lechuga, V. M. (2011). Faculty-graduate student mentoring relationships: Mentors' perceived roles and responsibilities. *Higher Education, 62*(6), 757-771. https://doi.org/10.1007/s10734-011-9416-0

Lillis, T. M. (2002). *Student writing: Access, regulation, desire*. Routledge. https://doi.org/10.4324/9780203186268

Lombard, M., Snyder-Duch, J., & Bracken, C. C. (2002). Content analysis in mass communication: Assessment and reporting of intercoder reliability. *Human Communication Research, 28*(4), 587-604. https://doi.org/10.1111/j.1468-2958.2002.tb00826.x

Mitchell, T. R. (2007). The academic life: Realistic changes needed for business school students and faculty. *Academy of Management Learning & Education, 6*(2), 236-251. http://www.jstor.org/stable/40214443

Montonen, T., Eriksson, P., & Woiceshyn, J. (2021). It's not a lonely journey: Research collaboration strategies for knowledge production with allies. *Academy of Management Learning & Education, 20*(2), 233-248. https://doi.org/10.5465/amle.2020.0318

Morales, D. X., Gransky, S. E., & Collins, T. W. (2017). Increasing research productivity in undergraduate research experiences: Exploring predictors of collaborative faculty-student publications. *CBE—Life Sciences Education, 16*(3), ar42. https://doi.org/10.1187/cbe.16-11-0326

Müller, S. D. (2022). Student research as legitimate peripheral participation. *Communications of the Association for Information Systems, 50*(1), 16. https://doi.org/10.17705/1cais.05016

Murphy, W. M. (2011). From e-mentoring to blended mentoring: increasing students' developmental initiation and mentors' satisfaction. *Academy of Management Learning & Education, 10*(4), 606-622. https://doi.org/10.5465/amle.2010.0090

Myers, M. D. (2019). *Qualitative research in business and management*. Sage. https://doc1.bibliothek.li/aca/FLMF036883.pdf

Nord, W. R. (1969). Social exchange theory: An integrative approach to social conformity. *Psychological Bulletin, 71*(3), 174. https://doi.org/10.1037/h0027032

Obwegeser, N., & Papadopoulos, P. M. (2016). Integrating research and teaching in the IS classroom: Benefits for teachers and students. *Journal of Information Systems Education, 27*(4), 249-258. http://jise.org/Volume27/n4/JISEv27n4p249.pdf

Olian, J. D., Carroll, S. J., & Giannantonio, C. M. (1993). Mentor reactions to protégés: An experiment with managers. *Journal of Vocational Behavior, 43*(3), 266-278. https://doi.org/10.1006/jvbe.1993.1047

Pinheiro, D., Melkers, J., & Youtie, J. (2014, 2014/01/01/). Learning to play the game: Student publishing as an indicator of future scholarly success. *Technological Forecasting and Social Change, 81*, 56-66. https://doi.org/10.1016/j.techfore.2012.09.008

Ragins, B. R. (1997). Diversified mentoring relationships in organizations: A power perspective. *Academy of Management Review, 22*(2), 482-521. https://doi.org/10.5465/amr.1997.9707154067

Ragins, B. R., & Scandura, T. A. (1999). Burden or blessing? Expected costs and benefits of being a mentor. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and*

Organizational Psychology and Behavior, 20(4), 493-509. https://doi.org/10.1002/(sici)1099-1379(199907)20:4%3C493::aid-job894%3E3.0.co;2-t

Richard, O. C., Ismail, K. M., Bhuian, S. N., & Taylor, E. C. (2009). Mentoring in supervisor–subordinate dyads: Antecedents, consequences, and test of a mediation model of mentorship. *Journal of Business Research, 62*(11), 1110-1118. https://doi.org/10.1016/j.jbusres.2008.09.007

Sanscartier, M. D., & Johnston, M. S. (2021). Learning the language of craft: A publishing workshop for graduate students. *Teaching in Higher Education, 26*(2), 197-210. https://doi.org/10.1080/13562517.2019.1648411

Scandura, T. A. (1992). Mentorship and career mobility: An empirical investigation. *Journal of Organizational Behavior, 13*(2), 169-174. https://doi.org/10.1002/job.4030130206

Scheff, T. J. (1990). Socialization of emotions: Pride and shame as causal agents. *Research Agendas in the Sociology of Emotions*, 281-304. http://jise.org/Volume27/n4/JISEv27n4p249.pdf

Simon, H. A. (1955). A behavioral model of rational choice. *The Quarterly Journal of Economics, 69*(1), 99-118. https://doi.org/10.2307/1884852

Sproull, L., & Kiesler, S. (1986). Reducing social context cues: Electronic mail in organizational communication. *Management Science, 32*(11), 1492-1512. https://doi.org/10.1287/mnsc.32.11.1492

Tenenbaum, H. R., Crosby, F. J., & Gliner, M. D. (2001). Mentoring relationships in graduate school. *Journal of Vocational Behavior, 59*(3), 326-341. https://doi.org/10.1006/jvbe.2001.1804

Tepper, B. J., & Taylor, E. C. (2003). Relationships among supervisors' and subordinates' procedural justice perceptions and organizational citizenship behaviors. *Academy of Management Journal, 46*(1), 97-105. https://doi.org/10.5465/30040679

Thomas, D. A. (1990). The impact of race on managers' experiences of developmental relationships (mentoring and sponsorship): An intra-organizational study. *Journal of Organizational Behavior, 11*(6), 479-492. https://doi.org/10.1002/job.4030110608

Urquhart, C., Lehmann, H., & Myers, M. D. (2010). Putting the 'theory'back into grounded theory: Guidelines for grounded theory studies in information systems. *Information systems journal, 20*(4), 357-381. https://doi.org/10.1111/j.1365-2575.2009.00328.x

Van de Ven, A. H. (2007). *Engaged scholarship: A guide for organizational and social research*. Oxford University Press on Demand. https://www.johnpbechara.com/uploads/1/2/9/5/12951614/bechara_and_van_de_ven_12-15-06.pdf

Walkington, H., Stewart, K. A., Hall, E. E., Ackley, E., & Shanahan, J. O. (2020). Salient practices of award-winning undergraduate research mentors – balancing freedom and control to achieve excellence [Article]. *Studies in Higher Education, 45*(7), 1519-1532. https://doi.org/10.1080/03075079.2019.1637838

Ward, C., & Berno, T. (2011). Beyond social exchange theory: Attitudes toward tourists. *Annals of Tourism Research, 38*(4), 1556-1569. https://doi.org/10.1016/j.annals.2011.02.005

Whitely, W., Dougherty, T. W., & Dreher, G. F. (1991). Relationship of career mentoring and socioeconomic origin to managers' and professionals' early career progress. *Academy of Management Journal, 34*(2), 331-350. https://doi.org/10.5465/256445

Winch, C., & Wells, P. (1995). The quality of student writing in higher education: A cause for concern? *British Journal of Educational Studies*, 75-87. https://doi.org/10.2307/3121758

Wingate, U., Andon, N., & Cogo, A. (2011). Embedding academic writing instruction into subject teaching: A case study. *Active Learning in Higher Education, 12*(1), 69-81. https://doi.org/10.1177/1469787410387814

Wright, A., Murray, J. P., & Geale, P. (2007, 12//). A phenomenographic study of what it means to supervise doctoral students. *Academy of Management Learning & Education, 6*(4), 458-474. https://doi.org/10.5465/AMLE.2007.27694946

Young, A. M., & Perrewe, P. L. (2000). What did you expect? An examination of career-related support and social support among mentors and protégés. *Journal of Management, 26*(4), 611-632. https://doi.org/10.1177/014920630002600402

Young, A. M., & Perrewé, P. L. (2004). The role of expectations in the mentoring exchange: An analysis of mentor and protégé expectations in relation to perceived support. *Journal of Managerial Issues*, 103-126. https://www.proquest.com/docview/194173244?pq-origsite=gscholar&fromopenview=true

Zaar, S., Van den Bossche, P., & Gijselaers, W. (2020). How business students think about leadership: A qualitative study on leader identity and meaning-making. *Academy of Management Learning & Education, 19*(2), 168-191. https://doi.org/10.5465/amle.2017.0290

ASSESSING THE IMPORTANCE OF TEACHING EFFECTIVENESS ON STUDENT EFFORT

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ABSTRACT

This paper examines the importance of teaching behaviors on student effort. Higher education research has documented the primary role of student effort in a host of student outcomes, including student learning. And yet, recent studies have identified declines in the levels of effort by college students, making the instructor's role in creating learning environments that foster student success and promote student effort even more important. The key research question in this study is to assess the importance of teaching behaviors on levels of student effort.

Motivation theories suggest teacher behaviors that fulfill student needs lead to student effort. Considerable research has documented what students describe as effective teaching behaviors, but little research has connected student observations of effective teaching behaviors to the fulfillment of student needs. This study expands on previous research through its conceptualization of teaching effectiveness as the gap between student rating of a teacher behavior and student-indicated importance of that behavior. A positive gap, when teacher behavior exceeds student-indicated importance of that behavior, represents a student need that has been met. Based on a review of literature, the multidimensionality of teaching behaviors is reduced to two factors reflecting those of teaching involvement and teaching structure. Teaching involvement refers to teaching behaviors of interpersonal support, caring, and rapport while teaching structure refers to behaviors of professional competency and teaching skill.

Survey responses from students in multiple sections of a college business finance course are used to measure student effort, teaching effectiveness gaps, prior academic success, gender, and perceptions of course challenge. Regression results on student effort suggest teaching effectiveness involvement gap has the largest impact, followed by student overall GPA and level of course challenge. Further analysis suggests the importance of teaching behaviors on student effort is greater among lower-GPA students than higher-GPA students.

Key words: Student Effort, Teaching Behaviors, Teaching Effectiveness, College Students

INTRODUCTION

Over the course of one's teaching career, many if not most college instructors will be faced with the challenge of motivating student effort toward academic learning. College faculty have deep training within their academic disciplines, and many have additional instruction in

pedagogies such as active and engaged learning. While instructors work to create a learning environment that will foster student success, they also realize that, without effort on the part of students, learning will not take place. In the end, "only the learner can learn" (Hammond, 2015, p. 115) and "all learning and development require an investment of time and effort by the student" (Pace, 1984, p. 5).

Student effort is not a new subject of study in higher education. Broadly defined as the extent or degree to which students exert time and effort in educationally purposeful activities, student effort has been examined in the context of student involvement (Astin, 1993b), integration (Tinto, 1993), and engagement (Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006). Importantly, student effort has been linked to student learning, including student self-reports (Astin,1993b), critical thinking assessments (Pascarella & Terenzini, 2005), test scores and course grades (Gupta & Maksy, 2014; Johnson, Joyce, & Sen, 2002) and overall academic development (Kuh et al., 2006), as well as linked to student satisfaction (Kuh, 2009) and persistence (Tinto, 1997; Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008).

Astin's (1993a) interactional framework provides a useful means of organizing the relationship between the relative contributions of student "Inputs" and college "Environment" on these student "Outcomes." Research confirms the importance of student effort in this I-E-O equation can hardly be overestimated. Based on their extensive review of the literature, Pascarella and Terenzini (1991, p. 610) concluded, unequivocally, that "the impact of college is largely determined by the individual's quality of effort and level of involvement" while Pace (1979) identified student effort as perhaps the most significant determinant of academic success. Yet, even given this prime importance of student effort in any equation concerning student outcomes, recent studies identify declines in the levels of effort by college students (Arum, Roksa, & Cho, 2011; Babcock & Marks, 2011; Hamilton, 2018) making the study of student effort ever more timely and vital.

In framing the question that is the focus of this paper, how college instructors impact levels of student effort, the same I-E-O framework (Astin, 1993a) that helps organize the study of student outcomes at the institutional level can also structure the evaluation of student outcomes at a course level. While instructors may have less influence on the student "Inputs" to their course save through course prerequisites, instructors have significant influence on the learning "Environment" particularly through their choice of course structure and teaching behaviors. While past research has examined the relationship of student effort with teacher behaviors (Campbell, Eichhorn, Basch, & Wolf, 2009; Skinner & Belmont 1993; Weaver & Cottrell, 1988), few have incorporated student expectation of teacher behavior in evaluating student effort (Geier, 2022), and none have examined the gap between student-indicated importance of teacher behavior and observed teacher behavior when examining impact of teacher behaviors on student effort. The goal of this study is to build upon earlier research connecting student effort with teacher behaviors by examining the impact of this gap in perceived teaching effectiveness on levels of student effort.

REVIEW OF LITERATURE

Several higher education studies have documented linkages between student effort and important student outcomes. Referring to students' commitment of time and effort in educationally purposeful activities, student effort can include time on task (Kuh et al., 2006), number of hours spent studying (Astin, 1993b; Gupta & Maksy, 2014; Pascarella & Terenzini, 2005), and amount of personal effort invested in learning (Pace 1998; Pascarella & Terenzini, 2005). As previously described, student effort has been linked to important outcomes of learning (Astin, 1993b; Pascarella & Terenzini, 2005) and academic development (Kuh et al., 2006), as well as measures of student satisfaction (Kuh, 2009) and persistence (Tinto, 1997).

For purposes of this study, student effort is conceptualized as a quality dimension (Pace, 1984). Specifically, student effort refers to the quality and intensity of behavior directed toward learning (Pass & Neu, 2014) and is consistent with Skinner and Belmont's (1993) concept of "student engagement" reflecting both intensity and concentration of effort. The influence of "Input" and "Environment" factors on student effort is outlined next.

TEACHING EFFECTIVENESS

Studies on what teacher behaviors are important to students suggest effective teaching is multidimensional (Buskist, Sikorski, Buckley, & Saville, 2002; Delaney, Johnson, Johnson, & Treslan, 2010; Feldman, 1976; Frey, 1978; Jackson et al., 1999; Marsh, 1982, 1983; Weaver & Cottrell, 1998). For example, Feldman's (1976) synthesis of research on student perceptions of good teaching identified 19 behaviors, Marsh's (1982, 1983) analysis of Student Evaluation of Educational Quality (SEEQ) confirmed nine factors of effective teaching, Jackson et al.'s (1999) analysis of Students' Perceptions of Teaching Effectiveness (SPTE) revealed six factors, Buskist et al. (2002) identified 28 behaviors of master teachers at the college or university level, while Delaney et al.'s (2010) work with college students resulted in nine teaching behaviors considered important in effective teaching. Numerous teaching behaviors appear repeatedly including, to name a few, behaviors that are enthusiastic, knowledgeable, organized, prepared, helpful, approachable/personable, communicative, positive/humorous, respectful, interesting, responsive, realistic, understandable, engaging, and rapport. Further synthesis of these lists reveal two broader categories of teacher behaviors: one category of behaviors serves to clarify expectations and convey course content and a second which reflects quality of interpersonal relationships and context. Frey (1978) synthesized these teaching behaviors into the categories of teacher competence/skill and teacher empathy/rapport. Along a similar demarcation, Buskist et al. (2002) suggests teacher behavior effectively convey content and reflect a personal, supportive relationship. In their factor analysis of Buskist et al.'s (2002) 28 teacher behaviors, Keeley, Smith and Buskist's (2006, p. 86) rotated two-factor solution identified teacher behaviors as "caring and supportive" and as "professional competency and communication skills." Similarly, Lowman's (1995, p. 31) two-dimensional model of effective college teaching includes behaviors

of interpersonal rapport (encouraging, helpful, accessible, caring, friendly) and intellectual excitement (knowledgeable, prepared, clear, organized).

Important to this current study are the mechanisms by which teacher behaviors influences student effort. Studies of such mechanisms are rooted in motivational research, including both psychological and educational approaches. A psychological approach to student motivation results in "the profile of student beliefs and attitudes that predict motivation" while an educational approach focuses on "the teacher behaviors that should be effective in promoting student motivation" (Skinner and Belmont, 1993, p. 571). Self-determination theory is at the intersection of these psychological and educational approaches and suggests teacher behaviors can facilitate student intrinsic motivation toward learning by satisfying students' needs for relatedness, competence and autonomy (Ryan & Deci, 2000; Skinner & Belmont, 1993). Teacher behaviors that fulfill student needs lead to student effort. As such, effective teaching are those behaviors that meet student needs.

Several research findings link teaching behaviors to student effort. Based on college student surveys on which teacher behaviors helped stimulate and sustain students' academic effort, Weaver and Cottrell (1988) recommend teachers clearly outline course goals and outcomes helping students know what to expect, show enthusiasm for both the content and the students, demonstrate a sense of humor, and interact with the students. In research by Campbell et al. (2009, p. 448), teacher confirmation behaviors that "endorsed, recognized, and valued" students increased college student effort to levels higher than the general level across all their classes. Similarly, Jones, Krost and Jones (2021) found teaching attributes such as caring were strong predictors of student effort. Using the Teacher Behavior Checklist (TBC), Geier (2022) identified three behaviors to positively impact student effort, including teacher behaviors of being creative and interesting, enthusiastic about teaching, and promoting critical thinking. And in their study of elementary students and teachers, Skinner and Belmont (1993, p. 574) identified teacher behaviors of involvement (an affective dimension) and teacher behaviors of structure (instrumental help and support) were associated with students being more engaged in the classroom and putting forth higher effort.

H_1: Student effort will be associated with teaching effectiveness.

COURSE CHALLENGE

Studies that examine the link between course challenge and student effort reflect a nuanced relationship. While higher academic standards have been associated with greater effort in high school students as measured by time spent on homework (Natriello & McDill, 1986), other research suggest student effort is a reflection of both course challenge as well as student background characteristics. Jones et al. (2021) found lower student effort associated with student perception of courses as easy as well as courses perceived as time consuming and difficult. Heckert, Latier, Ringwald-Burton and Drazen (2006) identified a positive relationship between student effort and class difficulty appropriateness while Campbell et al. (2009) identified a significant negative correlation between course challenge and student effort. Because student

perception of course challenge is anticipated to vary based on student background and preparation, a direct association between course challenge and student effort is not anticipated.

H_2: Student effort will not be associated with course challenge.

Further, findings by Campbell et al. (2009) suggest an interaction between students' perception of course difficulty and teacher confirmation behaviors. The more a teacher practices confirmation behaviors (recognizing, endorsing, valuing students), the lower was students' perception of course difficulty.

H_3: Course challenge will be negatively associated with teaching effectiveness.

PRIOR ACADEMIC SUCCESS

Prior academic success represents part of the background, or "Inputs," that students bring to their educational environment. Such success is anticipated to be positively related to student effort and perceptions of teaching effectiveness. Academic preparation, specifically GPA, has been linked to student effort through research at both an organizational level (Hu & Kuh, 2002) and course level (Heckert et al., 2006). Prior academic success is anticipated to be associated with measures of teaching effectiveness, primarily through student-indicated importance of such teacher behaviors. Consistent with past research on motivation and self-efficacy (Komarraju, 2013), a student's prior academic success would reasonably reduce their need perception of competence, which in this study would be reflected in lower student-indicated importance of certain teaching behaviors.

Prior academic success is anticipated to be negatively associated student perception of course challenge, primarily through the concept that earlier learning serves as the foundation for learning progression and more advanced concepts. Research findings connect student performances in prerequisite courses with performance in subsequent courses (Terry, de La Harpe, & Kontur, 2016), supporting the notion of learning progression.

H_4: Student effort will be associated with prior academic success.

H_5: Teaching effectiveness will be associated with prior academic success.

H_6: Course challenge will be negatively associated with prior academic success.

Gender

Gender is entered as a control variable. It is not expected to be associated with student effort, course challenge or teaching effectiveness.

TEST OF THE OVERALL MODEL

H_7. Student effort can be predicted with measures of academic preparation, gender, course challenge, and teaching effectiveness.

METHODOLOGY

Data Collection

The subjects for this study were students enrolled in multiple sections of a face-to-face, junior-level business finance course at an upper-Midwest state university. The curriculum, instructor, and course requirements were the same across all sections. A total of 196 students completed the course, and 169 students participated in the study.

MEASURES

Measures for this study were collected via student responses to a survey administered through the course's course management platform, Desire2Learn. Descriptions of measures follow.

Student Effort. Student Effort is conceptualized as both the quality and intensity of behavior directed toward learning activities and is measured through students' response to two survey questions that ask the degree to which students worked hard to meet the instructor's expectation and the extent to which they put forth effort in this class. Student Effort is computed as the mean of students' responses to the two measures: Work Hard and Putting Forth Effort.

Work Hard. Students responded to a survey question regarding how hard they worked in class. "As a student in this Financial Management class, how often have you engaged in the following behavior: I worked hard to meet the instructor's expectations." Response categories included: 1 = "never"; 2 = "rarely"; 3 = "occasionally"; 4 = "often"; and 5 = "very often".

Putting Forth Effort. Students responded to a second survey question regarding how much effort they put forth for this class. "While considering your experiences in this class, please indicate the degree to which putting forth effort describes you." Response categories included: 1 = "not at all characteristic of me"; 2 = "not really characteristic of me"; 3 = "moderately characteristic of me"; 4 = "characteristic of me"; and 5 = "very characteristic of me."

Teaching Effectiveness. As student effort is expected to be impacted by student perception of a fulfilled need, the measure of teaching effectiveness for this study considers not only the teaching behavior, but the importance of that behavior as assigned by the student. Further, the measure for teaching effectiveness must accommodate the multidimensionality of teaching behaviors described earlier.

The measures of teaching effectiveness developed by Delaney et al. (2010) serve as the foundation for the multidimensionality of teacher behaviors used in this research. Delaney et al. (2010) worked with college students to identify the teaching behaviors students considered important in an effective teacher. These results suggest students find the following behaviors in effective teachers: *respectful, knowledgeable, approachable, engaging, communicative, organized, responsive, professional and humorous.* To measure both the teacher behavior as well as importance of that behavior to the student, importance and rating measures were created for each teaching behavior. First, students were asked to indicate the importance of a teacher

behavior on a 7-point scale, 1= "not important at all" to 7 = "very important." Second, students were asked to rate their instructor's behavior on a 7-point scale, 1= "not at all characteristic of her" to 7 ="very characteristic."

Next, Delaney et al.'s (2010) nine behaviors are combined to reflect two dimensions of teaching effectiveness, based on the results of prior research. The first behavioral dimension of teaching effectiveness is labeled teaching "involvement." Involvement refers to a teacher's "quality of interpersonal relationships" (Skinner and Belmont, 1993), and is consistent with Keeley et al.'s (2006) care and support, Lowman (1995) interpersonal rapport, and Frey's (1978) teacher empathy and rapport. Teaching involvement behaviors help to meet student needs of relatedness (Ryan & Deci, 2000; Pass & Neu, 2014). The involvement scale is computed as the mean of a student's response to "supportive," "approachable," "engaging," and "humorous" measures of teaching effectiveness, and has a scale reliability, measured by Cronbach's Alpha, of .734.

The second dimension of teaching effectiveness is labeled teaching "structure". Structure reflects teacher behaviors that provide clarity of expectations and instrumental help (Skinner and Belmont, 1993). Teaching structure behaviors support student competence needs (Ryan & Deci, 2000; Pass & Neu, 2014). Teaching structure behaviors are consistent with professional competence and communication skills (Keele at al, 2006), intellectual excitement (Lowman, 1995) and teacher skill and competence (Frey, 1978). The structure scale is computed as the mean of a student's response to "knowledgeable," "responsive," "organized," "professional," and "communicative" measures of teaching effectiveness, and has a scale reliability of .738 as measured by Cronbach's Alpha.

Finally, a "gap" (rating minus importance) in teaching effectiveness was computed. A positive gap represents rating exceeding importance. A negative gap represents the importance exceeding rating. In this way, a positive gap indicates a fulfilled need and a negative gap an unfulfilled need. The resulting two measures of teaching effectiveness for this study include a *Teaching Effectiveness Involvement Gap* and *Teaching Effectiveness Structure Gap*.

Course Challenge. Course challenge is measured via student response to the survey question: "The expectations of this course have been challenging." Response categories included: 1= strongly disagree; 2= moderately disagree; 3= somewhat disagree; 4=somewhat agree; 5=moderately agree; 6=strongly agree.

Prior Academic Success. Prior academic success includes two measures: Overall GPA and Prerequisite GPA. *Overall GPA* represents student's response to the following survey question: "While you are taking this class, what would you estimate is your GPA?" Response categories include: 0=less than 2.0; 1=2.0-2.4; 2=2.5-2.9; 3=3.0-3.4; 4=3.5-3.9; 5=4.0. *Prerequisite GPA* is measured as student's grade in the prerequisite course Principles of Accounting II. Although failure to complete Principles of Accounting II should have prevented enrollment in the current course, the survey question was written in such a way as to accommodate all possible situations. Students responded to the following survey question: If you completed Principles of Accounting II, what grade did you receive in that class? Response categories included: 4="A"; 3="B"; 2="C"; 1="D"; 0=F"' I="incomplete"; Z = I am currently enrolled in Accounting II; NA = I have not enrolled in Accounting II.

Gender. Gender is being used as a control variable and is measured as follows: Male (1), Female (2).

ANALYSES

Correlations measure the relationship between variables and were used to test the univariate hypotheses (***H1, H2, H3, H4, H5, H6***). Multiple regression, using block (sequential) entry, was used to test the overall model (***H7***). Multiple regression provides a description of a model's overall fit as well as the relative contribution of each of the independent variables in explaining the model's total explained variance (Tabachnick & Fidell, 2019). Grouping explanatory variables in sequential blocks associated with the overall model allows for the evaluation of each block's unique contribution to the explained variance remaining at its point of entry. Block entries were made in the following sequence: Academic Preparation and Gender, followed by Course Challenge, and concluding with Teaching Effectiveness Gaps. Homogeneity of variance was evaluated through scatterplot of the regression residuals (Tabachnick & Fidell, 2019) as well as Levene's test (Field, 2014), $F(153,14) = .585$, $p=.941$). Multicollinearity did not emerge as a concern in the resulting regression models as the Variance Inflation Factor (VIF) values of the independent variables were well below the level of five (Field, 2014).

RESULTS

The descriptive statistics for the subjects of this study, including Astin's (1993a) measures designated as "Inputs", "Environment" and "Outcomes," are available in Table 1.

Table 2 presents correlations used to test the univariate hypotheses. The test on the hypothesis regarding Teaching Effectiveness and Student Effort (**H_1**) indicates a positive correlation between Teaching Effectiveness Involvement Gap and Student Effort ($r=.266$, $p<.01$) but a nonsignificant correlation between Teaching Effectiveness Structure Gap and Student Effort ($r=.126$, n.s.). Thus, *H_1 is partly supported*. The test on the hypothesis regarding Course Challenge and Student Effort (**H_2**) indicates no significant correlation ($r=.108$, n.s.), thus *H_2 is supported.* The test on the hypothesis regarding Course Challenge and Teaching Effectiveness (**H_3**) indicates significant negative correlation ($r= -.246$, $p<.01$) between Course Challenge and Teaching Effectiveness Involvement Gap as well as a significant negative correlation ($r= -.305$, $p<.01$) between Course Challenge and Teaching Effectiveness Structure Gap, thus, *H_3 is supported.* The test of the hypothesis regarding student prior academic success and Student Effort (**H_4**) indicates a positive correlation between Overall GPA and Student Effort ($r=.391$, $p<.01$) as well as Prerequisite Grade and Student Effort ($r=.367$, $p<.01$). Thus, *H_4 is supported.* The test of the hypothesis (**H_5**) regarding student prior academic success and Teaching Effectiveness indicates two significant correlations. The correlations with Overall GPA with both Teaching Effectiveness Involvement Gap ($r=.187$, $p<.05$) and Teaching Effectiveness Structure Gap ($r=.218$, $p<.01$) are significant. However, neither the correlation of Prerequisite Grade with Teaching Effectiveness Involvement Gap ($r=.106$, n.s.) nor Teaching Effectiveness Structure Gap ($r=.106$, n.s.) is significant. Thus, *H_5 is partly supported.* Finally, although the correlations are negative as anticipated, neither the correlation between Overall GPA and Course Challenge

(r=-.077, n.s.) nor between Prerequisite Grade and Course Challenge (r=-.057, n.s.) are significant thus, this test of the hypothesis regarding Course Challenge and prior academic success (**H_6**) *is not supported.*

Table 1 **Descriptive Statistics (n=169)**	
Input Variables:	
Prior Academic Success	
Overall GPA	
4.0	6.0%
3.5-3.9	29.8%
3.0-3.4	33.3%
2.5-2.9	25.6%
2.0-2.4	5.4%
Prerequisite Grade	
A	38.5%
B	46.2%
C	13%
D	2.4%
Male/Female	65.1%/34.9%
Environment Variables:	
Course Challenge	4.62(1.01)
Teaching Effectiveness Involvement Importance	6.069(.756)
Teaching Effectiveness Involvement Rating	6.015(.850)
Teaching Effectiveness Involvement Gap	-.054(.858)
Teaching Effectiveness Structure Importance	6.458(.618)
Teaching Effectiveness Structure Rating	6.540(.671)
Teaching Effectiveness Structure Gap	.081 (.609)
Outcome Variable:	
Student Effort	4.11(.710)

Table 2 **Spearman's Rho Correlations (n=169)**					
	1	2	3	4	5
1. Student Effort	--				
2. Overall GPA	.391**				
3. Prerequisite Grade	.367**	.604**			
4. Course Challenge	.108	-.077	-.057		
5. Teaching Effectiveness Involvement Gap	.266**	.187*	.106	-.246**	
6. Teaching Effectiveness Structure Gap	.126	.218**	.106	-.305**	.516**
Note: **p<.01. *p<.05.					

Multiple regression with block entry was used to measure the degree the overall model accounted for the variance in Student Effort (**H_7**). The first block entered was the Input variables of Overall GPA, Gender, and Prerequisite Grade. In the second block, student perception of

Course Challenge was entered. In the third block, both measures of Teaching Effectiveness Gaps were entered. The regression results for the final model with all three blocks (Table 3) show good fit of the variance in Student Effort (R^2 = .260) and a model that was highly significant (F(6,161)=9.412, p<.001). Change statistics evaluating each block's unique contribution to the variance explanation indicate the Teaching Effectiveness block explained significant variability (an additional 6.7% in Student Effort) after the explanation offered by variables in first and second block were entered. Of the 26 percent of variance in Student Effort accounted for in the full model, 6.7 percent is explained by the Teaching Effectiveness variables.

Looking more closely at the relative contribution of each of the independent variables in explaining the model's total explained variance, the variables that emerged as significant predictors of Student Effort included Teaching Effectiveness Involvement Gap (b=.299, p=.001), Overall GPA (b=.289, p<.001), and Course Challenge (b=.186, p=.010). Prerequisite Grade, Teaching Effectiveness Structure Gap, and Gender were not significant predictors of Student Effort. Thus, **H_7 is partly supported.**

Table 3
Multiple Regression Predicting Student Effort (n=168)

Variable	*Standardized Coefficients*	*t-Statistic*	*P-value*
Constant		7.150	.001
Overall GPA	.289	3.370	.001
Gender	.030	0.427	.670
Prerequisite Grade	.144	1.745	.083
Course Challenge	.186	2.612	.010
Teaching Effectiveness Involvement Gap	.299	3.515	.001
Teaching Effectiveness Structure Gap	-.062	-0.708	.480
Dependent variable: Student Effort; Total model R^2= .260; Total model F value = 9.412; Total model p>F=.001.			

FURTHER ANALYSIS

Given the significance of the "Input" variable, Overall GPA, in predicting Student Effort (Table 3), further analysis was conducted to evaluate how differences in Overall GPA might impact predictors of Student Effort. To structure this further analysis, students were divided into two groups of as close to equal size as possible given the distribution of Overall GPA values. The resulting groups included students with cumulative GPAs of 3.5 or higher on a 4.0 scale (n=60) and those with cumulative GPAs of lower than 3.5 (n=108).

A comparison of means is provided in Table 4 for the two student groups. On average the lower-GPA students put forth less effort (t=4.186, df=166, p=.001), described the course as more challenging (t=1.896, df=166, p=.030), and reported lower levels of teaching effectiveness measured as both Teaching Effectiveness Involvement Gap (t=2.225, df=166, p=.014) and Teaching Effectiveness Structure Gap (t=2.952, df=166), p=.022) than did higher-GPA students.

Separate regression analyses on Student Effort also were conducted for the two student groups. Table 5 provides the results for students with overall GPAs less than 3.5 (R^2 = .187, F(6,101) = 3.869, p<=.002) and students with overall GPAs greater than or equal to 3.5 (R^2 = .31, F(6,53) =3.980, *p*=.002). For students with Overall GPAs less than 3.5, the variables that predict Student Effort included Teaching Effectiveness Involvement Gap (b=.284, p=.010) and Overall GPA (b=.225, p=.018). For the higher-GPA students, the variables that emerged as predictors of Student Effort included Gender (b=.279, *p*=.019), Course Challenge (b=.269, p=.032) and Prerequisite Grade (b=.249, *p*=.037).

Table 4
Mean Comparison by Overall GPA

	GPA>=3.50	GPA<3.50	t-score (df=166)	Sig. (2-tailed)
	n=60	n=108		
Student Effort	4.408(.621)	3.954(.702)	4.186	.001
Prerequisite Grade	3.767(.427)	2.907(.717)	8.476	.001
Male(n=109)/Female(n=59)	30/30	79/29	3.078	.001
Course Challenge	4.42 (1.094)	4.72 (.946)	-1.896	.030
Teaching Effectiveness Involvement Gap	0.142(.751)	-.162(.897)	2.225	.014
Involvement Rating	5.992(.884)	6.028(.834)	-.263	.793
Involvement Importance	5.850(.697)	6.190(.763)	-2.850	.005
Teaching Effectiveness Structure Gap	0.263(.770)	-.020(.473)	2.952	.002
Structure Rating	6.600(.706)	6.506(.652)	.869	.386
Structure Importance	6.337(.595)	6.526(.622)	-1.918	.057

Table 5 **Multiple Regression Predicting Student Effort by GPA Group**			
Overall GPA>=3.5 (n=60)			
Variable	***Standardized Coefficients***	***t-Statistic***	***P-value***
Constant		.368	.714
Overall GPA	.212	1.821	.074
Gender	.279	2.412	.019
Prerequisite Grade	.249	2.136	.037
Course Challenge	.269	2.199	.032
Teaching Effectiveness Involvement Gap	.243	1.479	.145
Teaching Effectiveness Structure Gap	-.075	-.436	.664
Dependent variable: Student Effort; Total model R^2= .31; Total model F value = 3.980; Total model p>F=.002.			
Overall GPA<3.5 (n=108)			
Variable	***Standardized Coefficients***	***t-Statistic***	***P-value***
Constant		5.787	.001
Overall GPA	.225	2.408	.018
Gender	-.084	-.919	.360
Prerequisite Grade	.112	1.199	.233
Course Challenge	.148	1.594	.114
Teaching Effectiveness Involvement Gap	.284	2.608	.010
Teaching Effectiveness Structure Gap	.021	.192	.848
Dependent variable: Student Effort; Total model R^2= .187; Total model F value = 3.869; Total model p>F=.002.			

DISCUSSION

This study examined student effort levels across multiple sections of an on-campus, business finance course at a state university in the upper-Midwest region of the U.S. The key research question was to assess the impact of teaching effectiveness, conceptualized as the gap between student rating of teacher behavior and student-indicated importance of that teacher behavior, on levels of student effort. Astin's (1993a) I-E-O framework for assessment served as the conceptual model to structure the analysis.

The measures for teaching effectiveness were conceptualized as the gaps between student rating of teacher behavior and student-indicated importance of that teacher behavior. A positive gap indicated observed teacher behaviors exceeded student perception of importance of the behavior, or a met need, while a negative gap indicated observed behaviors fell short of student perception of importance, or an unmet need. Based on a review of the literature, Delaney et al.'s (2010) nine measures of teaching effectiveness were reduced to two factors, reflecting teaching involvement and teaching structure. Teaching involvement included teaching behaviors that reflect interpersonal support, caring, and rapport while teaching structure behaviors reflect

professional competency and teaching skill. The results suggest teaching involvement gap was significantly correlated to student effort while the correlation between teaching structure gap and student effort was positive but not statistically significant. Expected correlations between student effort and the remaining variables of the model held, including anticipated positive correlations between student effort with overall GPA and prerequisite grade as well as anticipated non-association between course challenge and student effort.

Multiple regression on student effort was conducted using a block, sequential entry. Astin's (1993a) I-E-O framework again established the block entry sequencing. Input variables of overall GPA, gender, and prerequisite grade were entered first, followed by the measure of course challenge, and finally by the two measures of teaching effectiveness gaps. The regression analysis revealed significant predictors of student effort included overall GPA, teacher involvement gap, and course challenge. Unexpectedly, teacher structure gap did not emerge as a significant predictor of student effort.

Given the focus of this research has been to identify those teaching behaviors within the course experience that positively influence student effort in the course, the emergence of an "Input" variable, overall GPA, as a significant predictor of student effort in the regression analysis prompted further analysis to examine how teaching effectiveness might be experienced differently by lower-GPA students and higher-GPA students. As shared in Table 4, lower-GPA students reported lower levels of teaching effectiveness as measured by both involvement gap and structure gap. Importantly, the difference in teaching effectiveness gaps between higher-GPA and lower-GPA students was due to significantly higher levels of student-indicated importance of teaching behavior by lower-GPA students. Specifically, the difference in student-indicated importance of teaching involvement between lower-GPA students (m=6.190, sd=.763) and higher-GPA student (m=5.850, sd=.697) is significant (t=2.850, df=166, p=.005). Similarly, the difference in student-indicated importance of teaching structure between lower-GPA student (m=6.526, sd=.622) and higher-GPA students (m=6.337, sd=.595) is moderately significant (t=1.918, df=166, p=.057). In the end, the difference in teaching effectiveness gaps (rating minus importance) between higher- and lower- GPA students is being driven by the higher importance assigned to these teaching behaviors by lower-GPA students.

Comparison of the regression results for the two student groups underscores that the importance of teaching effectiveness on student effort rests with the lower-GPA student. As shown in Table 5, student effort for lower-GPA students was explained by teaching effectiveness involvement gap and overall GPA, while the explanation of student effort for higher-GPA students included neither measure of teaching effectiveness.

This study builds on previous research that connects teacher behaviors to student effort. These results largely agree with the previous findings that teacher behaviors of involvement (Skinner and Belmont, 1993), confirmation (Campbell et al., 2009), caring (Jones et al., 2021) and enthusiasm (Grier, 2022) were associated with student effort. However, the current study found teacher behaviors of structure did not explain student effort. Further thoughts on this lack of finding will be offered under Conclusions and Implications.

This study builds on previous research that connects student needs to student effort. Consistent with research guided by self-determination theory which posits innate psychological

needs serve as the foundation for self-motivation toward effort (Ryan & Deci, 2000; Skinner & Belmont, 1993), this study posits that fulfillment of competence and relatedness needs are met with teacher behaviors labeled, of this study, structure and involvement, and contribute to the quality of student effort. Unlike the approach taken by Pass and Neu (2014) in which importance of needs is assumed, in this work, students are explicitly asked to indicate the importance of instructor behaviors to them. Need fulfillment was established as teacher behavior exceeding student-indicated importance.

This study expands previous research and contributes to the literature through the novel conceptualization of teaching effectiveness as gaps between student-indicated importance of teacher behavior and student ratings of that behavior. In this way, the resulting gap in teaching effectiveness essentially indicates met and unmet student needs in teaching behaviors, thus expanding upon previous work where observed teacher behavior (involvement, for example) met an assumed student need (i.e., relatedness) (Pass and Neu, 2014; Ryan and Deci, 2000; Skinner and Belmont, 1993).

Finally, this study expands on previous research by identifying the differing impact of teaching behaviors on student efforts for higher- and lower-GPA students. The additional analysis revealed significant differences between higher- and lower-GPA student measures of effort, course challenge, and teaching effectiveness involvement and structure gaps. The analysis also revealed the impact of teaching effectiveness on student effort was concentrated on lower-GPA students. Such results expand our understanding of how the importance of teaching effectiveness differs by background characteristics of student in one's class.

CONCLUSIONS AND IMPLICATIONS

Student effort remains a primary determinant of student success, and teachers can impact student effort through effective teaching behaviors and course design. The results of this study suggest the behaviors of teacher involvement (behaviors students perceive as supportive, approachable, engaging, and humorous) have the largest impact on student effort, followed by student overall GPA and level of course challenge.

The results of this study also suggest teaching effectiveness is more important for some students than others. The overall model predicted teaching effectiveness involvement gap helped explain levels of student effort. In the subsequent analysis separating higher- and lower-GPA students, the impact of teaching effectiveness on student effort was attached to the lower-GPA students, while course challenge and prerequisite grade predicted student effort for higher-GPA students. Combined, these results may seem intuitive. Highly successful students have demonstrated they know how to learn, have past academic success under their belts, and likely have high independent learning skills. Motivation for student effort among higher-GPA students seems to come from past successes (they are good at getting good grades) as well as the levels of course challenge (challenge increases their levels of effort). On the other hand, motivation for student effort among lower-GPA students was impacted by faculty supportiveness and engagement and may reflect the needs of a more dependent learner.

LIMITATIONS AND FUTURE STUDY

This study focused on student effort in a course with quantitative content. Repeating the study with students from a broader range of courses may allow for cross validation of the results. Also, this study focused on student effort among students in an on-campus, face-to-face course structure. It is reasonable to assume teacher behaviors that explain student effort might differ in an online setting. Comparing the results of this study to the results of a study with online students may provide critical insights to motivation of student effort across learning modalities.

Finally, only teaching effectiveness involvement gap predicted student effort while teaching effectiveness structure gap did not. Future research may wish to consider whether there might be two continuums for the construct of teaching effectiveness, rather than one as assumed in this study. Future research may reveal that teacher behaviors covered by the structure gap are considered the "norm" or "minimum" and go unnoticed except in their absence or deficit. A teacher who is "organized" may not serve to motivate effort; and yet, if the teacher is "unorganized" that may interfere with what otherwise would be student progress. In their work on factors that do or do not stimulate student effort, Weaver and Cottrell (1988) hinted that while an organized approach does not stimulate student effort, the lack of sufficient organization might give rise to student complaint. In the same way that Herzberg (1966) challenged the assumption that satisfaction and dissatisfaction were on two ends of one continuum but, rather, were on separate continuums, perhaps teaching effectiveness and ineffectiveness are on separate continuums with the effectiveness continuum (teacher involvement) being distinct from the ineffectiveness continuum (teacher structure).

REFERENCES

Arum, R., Roksa, J., & Cho, E. (2011). *Improving undergraduate learning: Findings and policy recommendations from the SSRC- CLA Project.* New York: Social Science Research Council.

Astin, A. (1993a). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education*. Phoenix: The Oryx Press

Astin, A. (1993b). *What matters in college? Four critical years revisited.* San Francisco: Jossey-Bass.

Babcock, P., & Marks, M. (2011). The falling time cost of college: Evidence from half a century of time use data. *Review of Economics and Statistics, 93*(2), 468-478. https://doi.org/10.1162/REST_a_00093

Buskist, W., Sikorski, J., Buckley, T., & Saville, B. (2002). Elements of master teaching. In S. F. Davis & W. Buskist (Eds.), *The teaching of psychology: Essays in honor of Wilbert J. McKeachie and Charles L. Brewer* (pp. 27–39). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Campbell, L. C., Eichhorn, K. C., Basch, C., & Wolf, R. (2009). Exploring the relationship between teacher confirmation, gender, and student effort in the college classroom. *Human Communication, 12*(4), 447–464.

Delany, J., Johnson, A., Johnson, T., & Treslan, D. (2010). *Students' perception of effective teaching in higher education.* 26th Annual Conference on Distance Teaching & Learning. University of Wisconsin-Madison. Retrieved November 26, 2022 from: http://www.mun.ca/educ/faculty/mwatch/laura_treslan_SPETHE_Paper.pdf

Feldman, K. A. (1976). The superior college teacher from the students' view. *Research in Higher Education*, *5*, 243-288.

Field, A. (2014). *Discovering statistics using IBM SPSS statistics (4th ed.).* London: Sage Publications.

Frey, P. W. (1978). A two-dimensional analysis of student ratings of instruction. *Research in Higher Education, 9,* 69-91.

Geier, M. T. (2022). The teacher behavior checklist: The mediation role of teacher behaviors in the relationship between the students' importance of teacher behaviors and students' effort. *Teaching of Psychology, 49*(1), 14-20. https://doi.org/10.1177/0098628320979896

Gupta, K., & Maksy, M. M. (2014). Factors associated with student performance in an investments course: An empirical study. *Journal of Finance and Accountancy, 16*, 1-31.

Hamilton, A. (2018). The need for student engagement. *New Directions for Teaching and Learning, 154*, 21– 31. https://doi.org/10.1002/tl.20288

Hammond, Z. L. (2015). *Culturally responsive teaching and the brain: Promoting authentic engagement and rigor among culturally and linguistically diverse students.* London: Sage Publications.

Heckert, T. M., Latier, A., Ringwald-Burton, A., & Drazen, C. (2006). Relations among student effort, perceived class difficulty appropriateness, and student evaluations of teaching: Is it possible to "buy" better evaluations through lenient grading? *College Student Journal, 40*(3), 588-596.

Herzberg, F. 1966. *Work and the nature of man.* New York: Thomas Y. Crowell Company.

Hu, S., & Kuh, G. D. (2002). Being (dis)engaged in educationally purposeful activities: The influences of student and institutional characteristics. *Research in Higher Education, 43*(5), 555-575.

Jackson, D. L., Teal, C. R., Raines, S. J., Nansel, T. R., Force, R. C., & Burdsal C. A. (1999). The dimensions of student's perceptions of teaching effectiveness. *Educational and Psychological Measurement, 59*, 580–596.

Johnson, D. L., Joyce, P. & Sen, S. (2002). An analysis of student effort and performance in the finance principles course. *Journal of Applied Finance, 12*(2), 67-72.

Jones, B. D., Krost, K., & Jones, M. W. (2021). Relationships between students' course perceptions, effort, and achievement in an online course. *Computers and Education* Open, 2, Article 100051. https://doi.org/10.1016/j.caeo.2021.100051

Keeley, J., Smith, D., & Buskist, W. (2006). The teaching behaviors checklist: Factor analysis of its utility for evaluating teaching. *Teaching of Psychology, 33*, 84-90. doi:10.1207/s15328023top3302_1

Komarraju, M. (2013). Ideal teacher behaviors: student motivation and self-efficacy predict preferences. *Teaching of Psychology, 40*(2), 104-110. DOI: 10.1177/0098628312475029

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

Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on college grades and persistence. *Journal of Higher Education, 79,* 540-563. https://doi.org/10.1353/jhe.0.0019

Kuh, G. D., Kinzie, J., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2006). *What matters to student success: A review of the literature?* Washington, DC: National Postsecondary Education Cooperative.

Lowman, J. (1995). *Mastering the techniques of teaching (3rd ed.)* San Francisco: Jossey-Bass.

Marsh, H. W. (1982). Validity of students' evaluations of college teaching: A multitrait-multimethod analysis. *Journal of Educational Psychology, 74*, 264- 279. https://psycnet.apa.org/doi/10.1037/0022-0663.74.2.264

Marsh, H. W. (1983). Multidimensional ratings of teaching effectiveness by students from different academic settings and their relation to student/course/instructor characteristics. *Journal of Educational Psychology, 75*(1), 150-166. https://psycnet.apa.org/doi/10.1037/0022-0663.75.1.150

Natriello G., & McDill E. L. (1986). Performance standards, student effort on homework, and academic achievement. *Sociology of Education, 59*(1), 18-31. https://doi.org/10.2307/2112483

Pace, C.R. (1979). *Measuring outcomes of college: Fifty years of findings and recommendations for the future.* San Francisco: Jossey-Bass.

Pace, C.R. (1984). *Measuring the quality of college student experiences. An account of the development and use of the college student experiences questionnaire.* Los Angeles, CA: Higher Education Research Institute.

Pace, C. R. (1998). Recollections and reflections. In J. C. Smart (Ed*.), Higher Education: Handbook of Theory and Research* (Vol. XIII, pp. 1 34). New York: Agathon Press.

Pascarella, E., & Terenzini, P. (1991). *How college affects students: Findings and insights from twenty years of research.* San Francisco: Jossey-Bass.

Pascarella, E., & Terenzini, P. (2005). *How college affects students: A third decade of research (Vol. 2).* San Francisco: Jossey-Bass.

Pass, M. W., & Neu, W. A. (2014). Student effort: the influence of relatedness, competence and autonomy. *Academy of Educational Leadership Journal, 18*(2), 1-11.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development and well-being. *American Psychologist, 55*(1), 68-78. https://psycnet.apa.org/doi/10.1037/0003-066X.55.1.68

Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology, 85*(4), 571–581. https://psycnet.apa.org/doi/10.1037/0022-0663.85.4.571

Tabachnick, B. G., & Fidell, L. S. (2019). *Using multivariate statistics (7th ed.).* New York: Pearson Education.

Terry, N. B., de La Harpe, K., & Kontur, F. J. (2016). The development of a learning gap between students with strong prerequisite skills and students with weak prerequisite skills. *Journal of College Science Teaching, 45*(3), 34-40.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition (2nd ed.)*. Chicago: University of Chicago Press.

Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *The Journal of Higher Education, 68*(6), 599-623.

Weaver, R. L., & Cottrell, H. W. (1988). Motivating students: Stimulating and sustaining student effort. *College Student Journal, 22*(1), 22–32.

THE BOARD GAME PROJECT: AN EXPERIENTIAL LEARNING EXERCISE TO DEVELOP CONCEPTUAL, FUNCTIONAL, AND VISUAL CREATIVITY SKILLS

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ABSTRACT

Creativity is one of the most in-demand skills sought by employers, as organizations must continue to innovate to keep up with technological advancements and remain competitive in a globalized economy. This paper outlines a board game project that instructors can use to develop students' conceptual, functional, and visual creativity skills. The results provide each student with a meaningful experiential exercise working with a team that invents a board game and develops it all the way to a manufactured product. The step-by-step process is provided along with an instrument to measure the creative performance of the completed board games. Following the board game project, students write an experiential learning essay summarizing their concrete experiences, reflective observations, abstract conceptualizations, and plans for active experimentation according to Kolb's (1984) Experiential Learning Model.

INTRODUCTION

Organizations must innovate to remain competitive, which means they must hire and develop creative employees. The World Economic Forum's *Future of Jobs Report* (2020) states that creativity is among the top-10 most in-demand skills across all jobs through 2025. Likewise, according to some recent LinkedIn surveys, creativity is among the most desirable skills sought by employers (Petrone, 2019; Anderson, 2020). Furthermore, Nixon (2021) contends that creativity is the one soft skill that has a return on investment for businesses. To help meet the needs of employers and prepare students for their careers, this paper introduces a board game project that develops students' creativity skills before graduating and entering the job market.

A game is defined as organized play (Klopfer, Osterweil, & Salen, 2009), where play is both voluntary and intrinsically motivating. Suits (1978) describes games as unnecessary obstacles we voluntarily tackle. Games are universal and timeless and transcend many demographic factors such as age, race, gender, education, and income. Everyone can think of at least one game they like to play, and many people enjoy all types of games. A board game is played on a hard surface or table and contains other components such as pawns, cards, dice, and timers, to name a few. They vary widely in genre, theme, number of players, objectives, and playing strategies.

The board game project challenges students to be creative in three ways: *conceptually, functionally,* and *visually*. *Conceptual creativity* requires novelty and relevance. It aims to solve problems by integrating current knowledge with new ideas. *Functional creativity* requires

usefulness and performance. It aims to ensure that every part of the invention serves a purpose and works with all the other parts. *Visual creativity* requires pleasing perceptions and the senses. It involves artistic design and aims to ensure that the invention is aesthetically attractive and appropriately communicates the concept. These forms of creativity overlap throughout the board game creation process. For example, the board itself must be *visually* compelling, emulate the *concept* of the game, and provide a *functional* purpose.

EVALUATING BOARD GAMES AND CREATIVE PERFORMANCE

Board games can quickly be evaluated by players, which provides a link between the creative person(s) and creative performance. Instructors should provide students with board game evaluation criteria before the board game creation process to help guide their ideas, decisions, and efforts. The criteria are derived from the gaming industry literature (Shute & Ke, 2012) and the engineering design literature (Oman, Tumer, Wood, & Seepersad, 2013). Appendix A: Board Game Evaluation Sheet provides the evaluation instrument with the ten criteria. The structure of this instrument is adapted from an assessment called the Multi-Point Creativity Assessment (Oman et al., 2013), which is utilized in engineering design to provide a quick but detailed judging method. It is based on a proven task analysis method developed by NASA (Hart & Staveland, 1988) and on adjective pairing employed by the Creative Product Semantic Scale (Besemer, 1998), which allows non-experts in any field to evaluate a new product by expressing their opinions about their experience with the product.

Each criterion on the Board Game Evaluation Sheet contains two adjectives on opposite ends of a 21-point scale. This allows instructors to assign various standards and rigor to the project. For example, a more general and less rigorous standard requires that most evaluations for each criterion fall on the right side of the midpoint mark. Or an instructor can assign a more specific goal by requiring that each evaluation meet a certain number on the scale (12+), and the higher the number, the more rigorous the standard. The mean scores on all criteria can then be added together to determine an overall score for the board game. The scores on specific criteria can also be linked to the three types of creativity student teams must demonstrate during the board game creation process – *conceptual*, *functional*, and *visual*. More information on this is provided in the next section, which outlines the implementation steps for the board game project.

BOARD GAME PROJECT IMPLEMENTATION STEPS

Instructors can implement the board game project in a traditional 16-week college course on creativity, innovation, entrepreneurship, or any other class requiring students to be creative. It can also be used in marketing courses to allow students to apply different steps of the New Product Development (NPD) process (Cooper, 1994; Crawford, 1991). It could even be used in a capstone design project course to help teams with creativity and collaboration. The entire project takes 13 weeks to complete. The nine steps for implementation are provided below, along with the number of weeks needed to complete each step.

Step 1: Self-Assessments, Team Formation, and Project Overview – Week 1

The Kaufman Domains of Creativity Scale (Kaufman, 2012) is a 50-item self-report assessment that measures creativity in five domains: self/every day, scholarly, performance, mechanical/scientific, and artistic. Since the board game project requires students to be creative *conceptually* (self/every day, scholarly), *functionally* (performance, mechanical/scientific), and *visually* (artistic), the K-DOCS survey is instrumental in forming balanced teams. Teams of four to five students are ideal, however teams can range from three to six members.

After teams are formed, discuss the three types of creativity the board game project requires them to demonstrate – *conceptual*, *functional*, and *visual*. Provide teams with an overview of the board game project, steps for completion, deadlines, evaluation criteria, and limitations. For limitations, some suggestions for class and university purposes are to have students keep it PG-13 and provide each team with a budget. For the suggested manufacturer (boardgamesmaker.com), $75 is a reasonable budget. Another limitation for student teams is to keep their creations within the boundaries of what the manufacturer can produce. It is helpful to have the students peruse their website before the next step. For evaluation purposes, the game should allow for at least four players and the players should be able to finish it within a reasonable period, such as 30-90 minutes.

Step 2: Board Game Concept Generation – Week 2

The first thing each student team should do is generate the overall concept for the board game. This requires *conceptual* creativity. Teams need to determine several things during this step:

- Describe the objective(s) of the board game. In Monopoly, for example, the objectives are to own as much property as possible and be the wealthiest person.
- Determine the type of game being created. Several options include, but are not limited to, strategy, adventure, role-playing, fantasy, conversational, or educational.
- Identify one or more themes of the game. A theme may include specific characters, it could be futuristic or historical, or the game can be based on some aspect of social culture like sports or music.
- Like any invention, describe the audience or target market. Some games are for adults, while others are for children. The target market might also include people with specific interests, lifestyles, hobbies, or knowledge.
- Generate a name for the board game that represents the objective, type of game, theme(s), and intended audience.

The board game evaluation criterion to focus on in step 2 is *game concept* by making it as original as possible.

Step 3: Board Game Strategy Creation – Week 3

During this step, student teams must determine the game's rules, clearly identify how a player wins, and develop different strategies players can use to win the game. Like step 2, this step requires *conceptual* creativity. The rules must be complete, focused, and easy to understand. Some specific things to address are the minimum and maximum number of players, which player starts and how that is determined, what is allowed and not allowed during a player's turn, and how to address any special circumstances that may occur. It is best if student teams determine multiple ways a player can win because this makes the outcome more suspenseful. It is crucial to think through how different situations will be resolved, such as how a tie will be settled. Player control via different actions and decisions should be built into the game because it enhances the playing experience, and players feel like they can influence the game's outcome.

As the game's strategic elements are created, several criteria on the board game evaluation sheet to consider are playing experience, gameplay, rules, game outcome, player control, player challenges, and performance feedback. They all require *conceptual* creativity.

Step 4: Development of Board Game Mechanics – Week 4

In this step, student teams determine the tangible components needed to play their game, which requires *functional* creativity. The tangible features include the box size, the board's layout, and all the pieces. While all board games must have a box and board, the other pieces vary from game to game. There may be cards, dice, pawns, play money, spinners, timers, tokens, or other components. It is essential that each piece have a purpose and that all the pieces work together. The board game mechanics determine the details of how players interact with each other and interact with the game itself. For example, in Monopoly, the mechanics are centered on dice rolling, buying/selling property, and exchanging money with the bank and other players. Student teams should check the prices of each component on the manufacturer's website, considering the needed quantity of each piece, to ensure they are within their budget.

As student teams develop the tangible components of the game, the two main board game evaluation criteria to consider are game features and gameplay. However, other criteria that can be enhanced through game mechanics include playing experience, player control, player challenges, and performance feedback.

Step 5: Prototype Design of Board Games – Week 5

Before student teams create the artistic designs of their board games, it is essential to develop a functional prototype that objective outsiders can play to provide feedback on board game concept, strategy, and mechanics (steps 2-4). Posterboards work well for drawing out the game board. Rules can be provided on a typewritten 8.5x11 sheet of paper. If the final game includes custom cards, handwritten index cards work well for the prototype. In many cases, entire decks of cards do not need to be generated for the prototype, but enough cards should be created to give players a good idea of how they are used and impact gameplay. Specific game

components such as dice, pawns, spinners, play money, and tokens can typically be borrowed from other board games to turn the prototype into a functional game.

Step 6: Prototype Evaluation of Board Games – Week 6

Student teams should have two or three groups of people in the intended audience play their prototyped game. These players should not be involved in the creation of the game. Have each player complete a Board Game Evaluation Sheet on all criteria except game design.

Step 7: Final Board Game Revision and Design – Weeks 7 through 9

After considering the feedback from all players who played the prototypes, the games should be revised. A few items of feedback student teams often receive are that the rules are unclear or incomplete and that their games need to be more interactive (evaluation criterion - gameplay) or suspenseful (evaluation criterion - outcome). This requires them to go back to step 3 on strategy creation and think of ways to improve player control, make it more interactive, and ensure player challenges are more adaptive.

During this step, student teams also begin designing the game, which requires *visual* creativity. It must be visually appealing to its target audience and emulate the game's concept. As logos, pictures, and other artwork are designed by the teams, it is critical for them not to infringe on any intellectual property. Most of the artistic design work appears on the box, board, and cards if included.

Step 8: Order Board Games from Manufacturer – Weeks 10 – 12

While several board game manufacturers exist, Board Games Maker (boardgamesmaker.com) is suggested for several reasons. They have over 35 years of experience manufacturing high-quality custom board games and all their components. There is no minimum order on most items, so you can order just one copy of each board game. Everything can be done on their website, from ordering standard dice to submitting custom designs for the box, board, pawns, and cards. There is no setup fee for the artwork. Costs of all game components are relatively inexpensive. And manufacturing and shipping combined only take a few weeks.

Step 9: Evaluation of Manufactured Board Games – Week 13

Once the final board games arrive, allow each student team to be the first to play their game. Appendix B: Results of Manufactured Board Games shows student teams playing their manufactured board games. Then have three to five groups of people in the intended audience play and evaluate them using the Board Game Evaluation Sheet. Try to get at least 20 individuals to play and evaluate each game. Instructors can use the results of the board game evaluations to assign grades to the student projects.

ASSESSING EXPERIENTIAL LEARNING

The Board Game Project is an experiential exercise, meaning the students actively engage in the learning process. Kolb's Experiential Learning Theory (1984) defines learning as the process whereby knowledge is created through the transformation of experience. Kolb's model includes four stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation. After students play their completed games and receive feedback from the evaluations, each student should write an experiential learning essay that includes the four parts of Kolb's model:

- Concrete Experience – describe the process of, results of, and your contributions to the board game project.
- Reflective Observation – discuss one or two things that were most meaningful to you from your experience developing the board game.
- Abstract Conceptualization – identify any new knowledge you gained by being involved in creating your board game or how it altered what you thought you knew before the project to what you now know.
- Active Experimentation – describe how you can take what you learned from your board game creation experience and use it to invent another product, start a business, make improvements in your current job, make future career plans, improve learning in other classes, and/or apply it to other aspects of your life.

An example of a student essay is provided in Appendix C: Sample Board Game Project Experiential Learning Report.

DISCUSSION

The board game project provides instructors with a meaningful, semester-long project that challenges student teams to be *conceptually*, *functionally*, and *visually* creative. Each team's board game is easy to evaluate by individuals who play the finished games and score them according to ten criteria that link back to the three types of creativity.

This project also supports Level 6 of Bloom's Taxonomy of Cognitive Learning, which is Creating (Bloom, 1956; Anderson, 1999). Creating is the highest level of student learning. It involves producing new or original work, and it requires students to generate, plan, and produce something to form a coherent and functional whole.

Moreover, the Board Game Project provides students with a legitimate experience that helps them answer job interview questions about creativity skills, which employers highly seek (Petrone, 2019; Anderson, 2020; World Economic Forum, 2020; Nixon, 2021). Some questions employers may ask are:

- Can you tell me about a time when you demonstrated creative thinking at work or school?
- What is the most creative or innovative project you have ever worked on?
- When have you had to think outside the box to create something new or solve a problem?
- Have you ever had to work on a team to develop something innovative?

The board game project gives students great answers to these common interview questions. They can discuss the final board game results, the process their team used during the project, their individual contributions to the final product, and what they learned from it.

It also provides students with a semester-long collaborative experience that translates well into many workplaces that rely on collaborative skills. Research shows that employees who work collectively on a task demonstrate higher engagement levels, lower fatigue levels, and a higher success rate (Priyanka & Walton, 2014).

One suggestion for further development of this project is to conduct a pre and post-creative self-efficacy survey (Karwowski & Lebuda, 2016; Tierney & Farmer, 2002) or a creative personal identity survey (Karwowski, Lebuda, Wisniewska, & Gralewski, 2013) to determine if students' beliefs about their creative potential (CSE) or self-image (CPI) increases by participating in the project. The experiential learning reports provide strong evidence that this is occurring.

In conclusion, the board game project helps meet the needs of employers who are seeking employees with creative skills that can be further developed, it prepares students for their careers by giving them a meaningful team project that requires *conceptual*, *functional*, and *visual* creativity, and it provides instructors with a fun project that meets many universities' experiential learning requirements.

REFERENCES

Anderson, L. W. (1999). *Rethinking Bloom's Taxonomy: Implications for Testing and Assessment.*

Anderson, B. M. (2020). The most in-demand hard and soft skills of 2020, *LinkedIn Talent Blog*, Retrieved from https://www.linkedin.com/business/talent/blog/talent-strategy/linkedin-most-in-demand-hard-and softskills.

Besemer, S. (1998). Creative product analysis matrix: testing the model structure and a comparison among products - three novel chairs. *Creative Research Journal, 11*(3), 333–346.

Bloom, B.S., Engelhart, M.D., Fürst, E.J., Hiss, W.H., & Krathwohl, D.R. (Eds.) (1956). *Taxonomy of educational objectives. The classification of educational goals.* Handbook I: Cognitive Domain. New York: Longmans

Cooper, R. (1994) Third-generation new product processes. *Journal of Product Innovation Management 11*, 3-14.

Crawford, C. (1991) *New Products Management* (3rd ed). Irwin, Homewood, IL.

Hart, S. G. and Staveland, L. E. (1988). Development of NASA-TLX (Task Load Index): Results of empirical and theoretical research". In *Human Mental Workload*, Edited by: Hancock, P. A. and Meshkati, N. 139–183. North-Holland, the Netherlands: Elsevier Science Publishers B. V.

Karwowski, M., & Lebuda, I. (2016). The big five, the huge two, and creative self-beliefs: A meta - analysis. *Psychology of Aesthetics, Creativity, and the Arts*, *10*(2), 214.

Karwowski, M., Lebuda, I., Wisniewska, E., & Gralewski, J. (2013). Big five personality traits as the predictors of creative self-efficacy and creative personal identity: Does gender matter? *The Journal of Creative Behavior*, *47*(3), 215-232.

Kaufman, J. C. (2012). Counting the muses: Development of the Kaufman Domains of Creativity Scale (K-DOCS). *Psychology of Aesthetics, Creativity, and the Arts, 6*(4) 298–308.

Klopfer, E., Osterweil, S., & Salen, K. (2009). Moving learning games forward. *Cambridge, MA: The Education Arcade.*

Kolb, D. (1984). *Experiential Learning: Turning Experience into Learning*. New Jersey: Prentice-Hall.

Nixon, N. (2020). *The Creativity Leap*: *Unleash Curiosity, Improvisation, and Intuition at Work.* Berrett-Koehler Publishers Inc.

Oman, S. K., Tumer, I. Y, Wood, K., and Seepersad, C. (2013). A comparison of creativity and innovation metrics and sample validation through in-class design projects. *Research and Engineering Design, 24,* 69-92.

Petrone, P. (2019). The most in-demand hard and soft skills of 2020, *LinkedIn Talent Blog*, Retrieved from https://www.linkedin.com/business/talent/blog/talent-strategy/linkedin-most-in-demand-hard-and softskills.

Priyanka, B. C. & Walton, G. M. (2014). Cues of working together fuel intrinsic motivation, *Journal of Experimental Social Psychology*, *53*, 169-184.

Shute, V. J., & Ke, F. (2012). Games, learning, and assessment. In *Assessment in Game-Based Learning* (pp. 43-58). Springer, New York, NY.

Suits, B. (1978). The Grasshopper: Games. *Life and Utopia*. Broadview Press

Tierney, P., & Farmer, S. M. (2002). Creative self-efficacy: Its potential antecedents and relationship to creative performance. *Academy of Management Journal*, *45*(6), 1137-1148.

World Economic Forum. (2020), *The Future of Jobs Report 2020.* Retrieved from https://www.weforum.org/reports/the-future-of-jobs-report-2020/.

APPENDIX A:
BOARD GAME EVALUATION SHEET

BOARD GAME EVALUATION SHEET

Instructions:

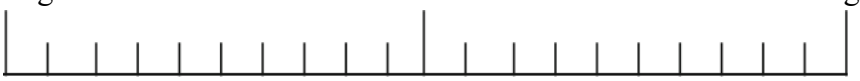
1) Play the board game
2) Evaluate it on the ten criteria provided below:

- **Game concept** – the overall idea should be original. It should not seem like a copy or version of another board game already on the market.
- **Playing experience** – the player's experience during the game should be surprisingly fun rather than dull or expected.
- **Game features** – the game's components, such as the board and other parts, should be unique rather than ordinary.
- **Game design** – the design of the box, board, and all components should, at a minimum, be attractive and intriguing. The goal is for the design to be more astonishing than boring.
- **Gameplay** – it should be interactive, where players consistently interact with the game itself and/or each other. Gameplay usually involves solving problems or engaging in quests.
- **Game rules** – the objective and rules of the game must be clear and help players focus on what to do and when.
- **Game outcome** – the game should be suspenseful and never predictable at any point during the game.
- **Player control** – the game should allow for player influence through their decisions and actions.
- **Player challenges** – the game should balance difficulty levels to match players' abilities.
- **Performance feedback** – the game should provide ongoing feedback to players about how they are performing throughout the game.

Name of Board Game _____

After playing the board game, please evaluate it on the ten criteria by placing an X on the continuum between the two descriptors. **Please place your X *on a line and not inside a box.***

Game Concept: Unoriginal — Original



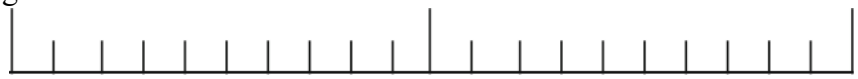
Playing Experience: Expected — Surprising

Game Features: Ordinary — Unique

Game Design: Boring — Astonishing

Gameplay: Static — Interactive

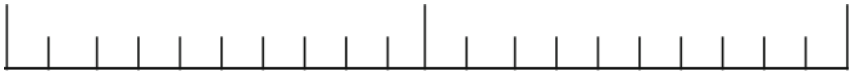
Game Rules: Vague — Focused



Game Outcome: Predictable — Suspenseful

Player Control: Ineffectual — Influential

Player Challenges: Non-adaptive — Adaptive to Ability



Performance Feedback: Infrequent — Ongoing

Please provide any constructive feedback below:

APPENDIX B:
RESULTS OF MANUFACTURED BOARD GAMES


Forest
Mountains

APPENDIX C:
SAMPLE BOARD GAME PROJECT EXPERIENTIAL LEARNING REPORT

Concrete Experience:

The idea for our board game was from a home renovation app. The game contained different components you would see if you were renovating a home, including furniture, appliances, cabinetry, and good and bad things you could run into during a renovation. My main contributions were defining the rules, deciding on all the game components needed, and designing the playing cards. I came up with the idea of having different decks since there are many areas when renovating a home.

Reflective Observation:

The most interesting aspect of the project was how to relate all the components of the board game to one another. The hardest part was deciding on how to play the game because my team and I all had so many different creative ideas. Something specific about the finished board game product that surprised me was how good our final board game looked. I thought our game was nicely put together and was not missing anything. I also enjoyed being able to step out of my comfort zone and work with students I did not know.

Abstract Conceptualization:

Before creating a board game from start to finish, I thought it would be easy, but I soon realized it is a complicated process. Coming up with a new idea for a board game was challenging. Our concept was innovative, and I was happy to be a part of my team because we worked well together to create a board game with all the necessary components. I learned that with a group of talented individuals you can accomplish anything. After we saw our finished board game and played it with each other, I wondered how easy it would be to sell what we created. I looked on Amazon and found that anyone can build a store for free.

Active Experimentation:

This project taught me many valuable things that will be useful in the future when I open my own floral shop. It is amazing what a team can accomplish when you combine ideas and talents. One thing I will take from this project is to always consider how to make different components of a product flow together. Another thing I will do is be creative when coming up with rules and regulations for my employees because creative ideas help make the workplace better.

GREENWASH AND ASK FOR FORGIVENESS LATER: A CASE STUDY

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CASE DESCRIPTION

On September 18, 2015, the U.S. Environmental Protection Agency (EPA) made a shocking announcement that some of Volkswagen's TDI diesel vehicles had a "defeat device" that allowed the nitrogen oxide (NOx) engine output to meet U.S. emissions standards during testing while the vehicle was emitting up to 40 times the permitted level in true driving conditions. The sophisticated scheme, also known as "Dieselgate," started with approximately 500,000 cars in the U.S., but the total of affected vehicles climbed sharply to nearly 11 million worldwide within days. The irony was that while Volkswagen was boasting about its eco-friendly, green image, its engineers were rigging millions of its theoretically clean diesel engines with software that tricked emissions tests.

This case is an excellent vehicle for demonstrating how greenwashing and deceptive advertising exist in today's world. The case highlights the significance of business ethics and corporate governance and could be used in an undergraduate green marketing or business ethics course. The case is designed to be taught in a 60–75-minute class and is expected to require 3 hours of outside preparation by students.

CASE SYNOPSIS

Volkswagen entered the U.S. market in 1955, but it wasn't until almost half a century later that the German automaker found its niche in the U.S. diesel engine (which uses diesel fuel) category. VW adored diesel. It accounted for half the new cars sold in Europe, triggered by lax EU regulations. Diesel vehicles were cheaper than hybrids and packed more power under the hood yet still garnered more than 40 miles to the gallon. The U.S. market was a different game with more strict environmental standards. Thus the trick came down to how to engineer a mechanism to strip soot exhaust of its pollutants to meet the tough U.S. regulations. Situations in which there is a significant gap between the expressed and genuine commitments to sustainability, like Volkswagen's, is known as greenwashing - The greenwashing was certainly elaborate as it involved fraud and deception on a wide scale. VW spared no effort to mislead millions of unsuspecting customers in an attempt to position itself as one of the world's greenest carmakers. But it backfired! The company found itself in a plethora of legal nightmares, and its impeccable reputation and brands were severely tarnished. The scandal plunged the German auto giant into the deepest crisis of its history, costing $30 billion in fines, recalls, buybacks, and class-action lawsuits. VW's revenues, profits, and market capitalization tanked for months. However, the new CEO, Matthias Müller, has managed to turn things around. Volkswagen

bounced back and became the largest carmaker in the world with 9 million deliveries in 2021. The multi-brand company, which also produces 10 prominent brands like Audi, Lamborghini, and Porsche in addition to Volkswagen vehicles, has been more aggressively moving into electronic vehicle manufacturing lately, investing billions.

CASE BODY

GREENWASHING

Over the last two decades, environmentally friendly products, energy conservation, and sustainability have become vital topics in modern marketing. However, terms like "green," "sustainable," "eco-friendly," and "organic" are being abused by corporations to attract the sophisticated consumer, giving rise to the greenwashing phenomenon. The popular term was coined by environmentalist Jay Westerveld in 1986 to criticize hotels that encouraged guests to reuse towels for environmental reasons but made little or no effort to recycle waste or reduce their footprints (Watson, 2016). Greenwashing essentially refers to situations in which there is a significant gap between the expressed and genuine commitments to sustainability. For instance, environmentalists often accuse oil companies of using sweeping vague or misleading environmental claims in order to tout their ecological friendliness when, in fact overall, their investments in renewable energy are small compared with the monetary amounts that goes into their fossil fuel divisions.

In a world in which greenwashing is widespread, it is imperative that each corporation establishes credibility in the eyes of the consumer. Corporate credibility refers to the degree to which consumers believe that a company is willing and able to deliver on its promises to satisfy consumer needs and wants. Being sustainable or green can be a powerful competitive advantage, as consumers are increasingly choosing green products and services and are willing to pay a premium for them.

Possible reasons for companies to engage in greenwashing include mounting pressure from different stakeholders and the potential benefits that can be gained in terms of profits, image, and reputation.

The recent attention given to combating climate change and conserving energy has led the U.S. Environmental Protection Agency (EPA) to tighten emission standards for vehicles. The German automaker, Volkswagen, is one of many companies guilty of greenwashing—claiming more about their environmental efforts than is factual. Ironically, the term "green" originally came into popularity through steady use by the Green Party that was founded in Germany in the late 1970s. The word's use was in the context of preserving old, abandoned buildings (instead of building new ones) with the goal of curbing deforestation (Motavalli, 2011).

VOLKSWAGEN AG

The history of Volkswagen dates to 1937, when a company called Deutsche Arbeitsfront was founded by the German government to manufacture affordable vehicles for the average

consumer. Two years later, production switched to military equipment during WWII. After the war, the factory was taken over by the British army, and the Volkswagen brand was created. For the next ten years, the Beetle model became increasingly popular on a global scale. Then the company gradually became the biggest automaker in Europe through several acquisitions. Today, the Wolfsburg-based empire encompasses 12 prominent brands: Audi, Bentley, Bugatti, Lamborghini, Porsche, Ducati, Seat, Skoda, Scania, Man, VW Commercial Vehicles, and Volkswagen.

In 2021, The Volkswagen Group generated €250.2 billion in sales and €19.3 billion in profits, delivered 9 million vehicles worldwide, and employed 673,000 people (VW Annual Report, 2021). Volkswagen is also the 47th most valuable brand in the world, with brand equity of almost $13.4 billion (Interbrand, 2021).

VOLKSWAGEN STAKEHOLDERS

The Volkswagen "dieselgate" is an infamous illustration of how corporations can influence the ethical and legal aspects of the business environment. Undoubtedly, the VW diesel emissions scandal, with its epic proportions, has impacted various stakeholders, including:

- *Consumers: VW, by means of deceptive advertising and greenwashing, stripped its customers of the freedom to make rational choices and decisions. Customers were misled into believing they were owning and driving green cars that did not have a negative impact on the environment. Consumers now will be more vigilant than ever because this is unlikely to be the last of the high-tech greenwash.*
- *Employees: VW engineers took the myopic easy way out instead of determining a legitimate solution. The company could not meet emissions standards, so it devised fraudulent ways to cheat. While some employees resorted to the manipulation of the vehicles' emissions measurements, others may not have had any involvement, but they are linked to a fraudulent company.*
- *Dealers: The VW debacle left its dealership network struggling with lower sales and profit. The sale of Volkswagen diesel cars came to a screeching halt, disrupting dealers' operations and model inventories.*
- *Competitors: The competitive environment was rigged, providing the German automaker with an unfair competitive advantage. Other automakers did not stand a chance and lost sales to VW.*
- *Government Regulators: Volkswagen has blatantly disregarded the law by cheating government regulations in the U.S. and Europe. Thereby causing regulators to look incompetent.*
- *Shareholders: They were obviously worse off as VW shares lost up to 40% of their value.*
- *General Public: Probably the biggest tragedy of this entire scandal is the release of vast amounts of nitrogen oxide into the atmosphere. NOx gases cause smog, acid rain, and the formation of the ground level ozone which are linked to adverse health effects such as inflammation of the airways and respiratory problems including asthma, bronchitis, and emphysema (EPA, 1998).*

VOLKSWAGEN DIESELGATE

VW could not meet diesel emissions standards, so it devised an elaborate way to cheat and gain certification for its vehicles. Obviously, that's both illegal and unethical. Although there is no concrete proof (yet), one might assume that the decision to develop, manufacture, and install the technological component for the scam came from the highest levels of Volkswagen management. An operation of this magnitude—rigging 11 million cars from 2008 to 2015—could not be the act of a few junior employees. Regardless of who was behind the scheme, the company intended to mislead consumers and government officials alike. The goal was to portray

a false image of eco-friendliness and become the world's biggest car manufacturer. The German automaker was nearly able to achieve this objective when it became the world's second-largest car manufacturer behind Toyota in 2015 (Schmitt, 2016). In the process, however, VW had broken a number of laws, including consumer protection and deceptive advertising statutes. U.S. laws criminalize fraud and tort strict liability for defective products. Installing software to cheat on the emissions test and obtain the required legal certifications violated the U.S. Clean Air Act. The law gave the U.S. government the power to recall vehicles and fine the auto manufacturer up to $37,500 per defective car (EPA, 2009). Indeed, Volkswagen AG has agreed to spend up to $14.7 billion to settle "allegations of cheating emissions tests and deceiving customers" in the U.S. alone (DOJ, 2016), though "Dieselgate" also affected European countries. The moral of the lesson is loud and clear: There is always a cost for ill-gotten gains.

BEG FOR FORGIVENESS

The vexing and ubiquitous statements issued by many companies when get caught red-handed like: "we will look into it" or "we are sorry the public feels that way," simply will not work to assuage consumers any longer. Companies need to show that they are human, and that involves them taking responsibility for the situation and putting things in place to keep fraudulent situations from happening again. CEO Martin Winterkorn first blamed low-level engineers and denied any senior management involvement. When this proved false, he apologized and resigned his position as CEO (Vorstandsvorsitzender in German) of Volkswagen AG, the parent company of the Volkswagen Group. While an apology is critical, and there is value in humility, actions speak louder. Those actions must be seen following the apology, or the apology will ring hollow in the ears of the consumers and regulators. Volkswagen was penalized and mandated to pay $30 billion to U.S. and E.U. regulators. An apology was basically not enough. Mr. Winterkorn is still confronting charges in Europe, and could face up to a decade in prison (Jolly, 2019).

There is no right way to approach to redemption. Alternatives could include:

- *Come clean. Be transparent, disclose everything, and show remorse.*
- *Cooperate with regulators: Turn in required documents and work with government officials sincerely and openly to reduce emissions and verify compliance with pollution standards.*
- *Offer a buyback program: Assure owners of the rigged vehicles that they will be taken care of. While their cars have lost value, the company should step in and allow returns or exchanges.*
- *Invest in local communities: Donate to local schools, hospitals, and charities.*
- *Commit to green R&D: Invest in sustainability research and development to build fuel-efficient and environmentally friendly vehicles, reduce carbon footprints and greenhouse gases emissions.*
- *Review internal control systems: Empower employees to speak up, and establish stronger accountability structures, practices, and standards.*
- *Revisit corporate culture: Establish a corporate culture of adherence to the law, ethics and integrity, social responsibility, and sustainability. VW employees should undertake training in the context of having a legal and moral duty to report any wrongdoing on the part of the company or co-workers, and top management should assure employees that absolutely no retribution will be taken against whistleblowers.*
- *Seek third party certification: Partner with reputable organizations or watchdogs to verify green initiatives and practices.*
- *Walk the talk: Tone down fluffy advertising themes and focus on developing innovative and valuable technology to satisfy various stakeholders. If a company spends more on its eco-friendly marketing campaigns than actually funding sustainability efforts and product development, greenwashing is inevitable.*

ROAD TO REDEMPTION

Volkswagen has paid a steep price ($30 billion) to manage the crisis and get out of the "Dieselgate" deep legal hole. However, rebuilding the company's reputation back up to its former glory as a quality automaker that provides value to the consumer as well as an entity that acts in a legal, moral, and socially responsible manner is not so quick of a fixed. Volkswagen AG has traditionally been recognized as an outstanding multi-brand company, but the scandal has tarnished its brands thereby the company is portrayed as an unethical business that deliberately and consciously manipulated its consumers' cars' software to fabricate data. Volkswagen will be known as a company that deceived the U.S. and E.U. regulators and the public regarding emission standards compliance. If it didn't get caught, it would have probably continued to fool governments and consumers. In today's market, consumers have so many choices, and they can easily boycott companies engaging in questionable or fraudulent practices. If they had boycotted Volkswagen, the company's road to redemption would have been much harder.

Indeed, powerful strategies do exist to reestablish credibility and minimize a long-term backlash. Showing instead of telling is the way to go. Advertising the company's commitment to and involvement in sustainability efforts does not mean much if the advertising is not supported by practices to refurbish the company's eco-reputation and green image, particularly pertaining to reducing emissions while maintaining superior performance. Demonstrating this new ethical value system and corporate culture to all its stakeholders as well as the communities where the company does business is key to re-earning trust and winning back customers. Moving away from diesel in the U.S. market and shifting to electric vehicles, which not only meet legal requirements but exceed the standards by using state-of-the-art environmental technology, was a good strategy. VW has been sparing no opportunity to show that it has become a good corporate citizen. For instance, amid the 2020 Coronavirus pandemic, Volkswagen modified its production lines to manufacture desperately needed medical gear and equipment. The German automaker tweaked some of its plants to make ventilators (VW News, 2020) and even face masks and gowns for healthcare workers (Szymkowski, 2020).

Table 1: VW's Worldwide Deliveries (2015–2020)

Year	2015	2016	2017	2018	2019	2020
Vehicles	9,930,517	10,296,997	10,741,455	10,834,008	10,974,636	10,477,939

Source: VW Annual Report (2021)

In brief, despite the emissions scandal, Volkswagen was able to maintain its top ranking as an automaker, delivering nearly 9 million vehicles worldwide in 2021. Investments in electric vehicles and high-profile community service will help to solidify the crown on the auto giant.

REFERENCES

Department of Justice (June 28, 2016). Volkswagen to Spend Up to $14.7 Billion to Settle Allegations of Cheating Emissions Tests and Deceiving Customers on 2.0 Liter Diesel Vehicles. Retrieved from https://www.justice.gov/opa/pr/volkswagen-spend-147-billion-settle-allegations-cheating-emissions-tests-and-deceiving

Environmental Protection Agency (September, 1998). How nitrogen oxides affect the way we live and breathe. Retrieved from https://web.archive.org/web/20080716063437/http://www.epa.gov/air/urbanair/nox/noxfldr.pdf

Environmental Protection Agency (January 16, 2009). Clean Air Act Mobile Source Civil Penalty Policy - Vehicle and Engine Certification Requirements. Retrieved from https://www.epa.gov/sites/production/files/documents/vehicleengine-penalty-policy_0.pdf

Interbrand (2021). Best Global Brands 2021 Rankings. Retrieved from https://interbrand.com/best-brands/

Jolly, Jasper (April 15, 2019). Former head of Volkswagen could face 10 years in prison. Retrieved from https://www.theguardian.com/business/2019/apr/15/former-head-of-volkswagen-could-face-10-years-in-prison

Motavalli, Jim (February 12, 2011). A History of Greenwashing: How Dirty Towels Impacted the Green Movement. Retrieved from https://www.aol.com/2011/02/12/the-history-of-greenwashing-how-dirty-towels-impacted-the-green/

Schmitt, Bertel (January 27, 2016). Nice Try VW: Toyota Again World's Largest Automaker. Retrieved from https://www.forbes.com/sites/bertelschmitt/2016/01/27/nice-try-vw-toyota-again-worlds-largest-automaker/#7307ea034165

Szymkowski, Sean (April 6, 2020). VW makes face masks, other medical supplies via partnership with fabric supplier. Retrieved from https://www.msn.com/en-za/autos/news/vw-makes-face-masks-other-medical-supplies-via-partnership-with-fabric-supplier/ar-BB12fMZw

Volkswagen Group (2021). Annual Report. Retrieved from https://annualreport2021.volkswagenag.com/

Volkswagen News (April 1, 2020). From making cars to ventilators. Retrieved from https://www.volkswagenag.com/en/news/stories/2020/04/from-making-cars-to-ventilators.html

Watson, Bruce (August 20, 2016). The troubling evolution of corporate greenwashing. Retrieved from https://www.theguardian.com/sustainable-business/2016/aug/20/greenwashing-environmentalism-lies-companies

IDENTIFYING FACTORS INFLUENCING FACULTY MOTIVATION AND SATISFACTION IN TEACHING SERVICE-LEARNING COURSES

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ABSTRACT

Service-learning can enhance students' subject matter learning, understanding and firsthand experiences. Using service-learning as the teaching strategy provides an innovative pedagogical approach to realizing higher education's civic responsibilities. Despite the known facts to its benefits, service-learning is not thoroughly integrated into the higher education curriculum in all disciplines. Lack of integration is often considered a result of minimal institutional commitment to service-learning, including scarce administrative support, faculty participation, and funding, etc.… Little research has been conducted toward faculty members' motivation to incorporate service-learning into their teaching. The purpose of this research is to identify and describe the factors that motivate faculty in the state of Indiana integrating the service-learning into their teaching efforts. A survey questionnaire is designed to gather information about motivation factors and faculty satisfaction in terms of the supports for their service-learning activities. The survey contains both closed and open-ended questions and is pilot tested. The survey respondents are the faculty from two-year and four-year higher education institutions in the state of Indiana who have integrated service-learning component into their courses. The survey result will identify and describe the motivation and satisfaction according to institution type, academic discipline, faculty rank, tenure status, gender, and racial identification. The relationships between the related factors will be analyzed and discussed as well. The research results are useful in identifying areas and providing recommendations for faculty members, institutions, research funding sponsors, the field of service-learning and higher education administrators to motivate and encourage more faculty integrating service-learning into their teaching with needed supports.

Keywords: ***s**ervice-learning**,** motivation, satisfaction, supports*

INTRODUCTION

Service-learning is an effective teaching and learning strategy that integrates meaningful community service with instructions and reflections to enrich the learning experience, teach civic responsibility, and strengthen community's relationships. Historically, students have been encouraged to identify social issues, examine and analyze them with the goal of social change (Westheimer & Kahne, 1998). The recent surge of support received from higher education institutions around the country has been instrumental in linking those same universities to the communities in which they reside (Ward & Wolf-Wendel, 2000). Not only are the best practices of service-learning designed to "enhance the student learning experience to create self-motivated

learners who become civic participants" (Marullo & Edwards, 2000), but ideally offer a visible response to our communities' changing economic, political, and social needs.

Given this innovative and ideological vision of what service-learning is designed to do, why do only some faculty take advantage of this pedagogical opportunity? Indeed, the literature on service-learning are growing with exhortations for faculty participation in students' service-learning activities. And yet, little attention has been given to the faculty role in adopting service-learning to their teaching efforts. The faculty motivations are rarely referenced in the service-learning literatures, nor are they utilized to inform service-learning advocacy on campuses. Therefore, this study identifies the faculty who have adopted service-learning and seeks to understand their motivations and satisfactions. The implications of this research are both scholarly and practical. An examination of service-learning faculty motivations enhances our understanding of the scholarly profession by clarifying the circumstances under which faculty may modify their teaching to include a service-learning component. At the same time, a better understanding of the satisfactions of faculty who integrate service-learning and teaching provides a base for extending and improving the quality of higher education.

The purpose of this study is to gather, analyze, describe, and discuss data regarding the factors influencing faculty motivation and satisfaction in teaching service-learning courses. This is intended as a research and assessment study to enrich and improve service-learning in higher education and in the field of service-learning. The goal of this study is to identify directions and provide recommendations for faculty members, institutions, research funding sponsors, the field of service-learning and higher education administrators to motivate and encourage more faculty integrating service-learning into their teaching with needed supports.

METHODOLOGY

Research Design

This study was divided into three phases. The phase one of the study is to identify the faculty who may have incorporated service-learning as a component in their courses, and to collect the faculty institution information and their email addresses from any possible sources. The phase two is to develop the questionnaire to answer the research questions. The questionnaire (Appendix A) was designed to assess faculty's thoughts about and experiences with teaching service-learning courses. A pilot-test of the survey was conducted by several research-experienced senior faculty and the consultants from the Office of Instructional Technology in Purdue University Northwest (PNW) to refine the instrument design prior to official distribution. The IRB (Institutional Review Board) review on the survey was approved during the phase two. The official survey was distributed via emails with a link to the survey on the Qualtrics system. Two survey reminders were emailed to the respondents. The phase three is to clean up and study the collected data using statistical tests, and to summarize the research results and conclusions.

Research Questions

The study is designed to answer the following four research questions:

1) Who are the faculty that incorporate service-learning in their courses in Indiana higher education?
2) What motivated the faculty to incorporate service-learning in their teaching efforts?

3) How are the faculty satisfied with the support for teaching service-learning courses?
4) Are the faculty inclined to continue and/or expand their involvement in service-learning in the future?

Research Instrument

To answer the four research questions, an online survey is designed in Qualtrics system. There are four sections and a total of twenty-nine questions in the survey. The first section contains nine demographic questions to have a better understanding of the respondents' professional and academic background. The second section is designed to identify the motivation factors that consisted of three parts, individual factor, institutional factor and outcome factor. The outcome factor includes questions for student learning-related outcome, faculty-related outcome and community-related outcome. The third section is to measure to what extent that faculty are satisfied with the support from their efforts in service-learning education. A five-point Likert scale is used to provide a rating scale. A rating of 5 signified "very satisfied" on the statements while a 1 signified "very dissatisfied" on the statements. The fourth section is designed to understand the relationship between motivation and satisfaction. The last question on the survey is used to collet any additional comments or suggestions. All respondents' comments and suggestions are documented.

Data Collection and Response Rate

The initial faculty data was provided by the research sponsor, Indiana Campus Compact (ICC). The ICC awards faculty members from all over the state of Indiana with teaching, research and service grants supporting their service-learning endeavors. The authors further contacted a few ICC faculty liaisons in several universities/campuses, such as Purdue University-West Lafayette, Purdue University Northwest, Indiana University-Bloomington, Taylor University, Marian University, Butler University, Ball State University, … etc. to obtain more service-learning faculty data and ask for the assistance to forward the survey invite email to their own faculty on campus.

In total 328 faculty from 37 higher education institutions and 22 departments in Indiana were emailed to request for responses to the survey. After the survey is closed, it collected 120 responses. Out of the 120 responses, there are 96 valid data good for analysis that yields a response rate of 29.3%.

RESULTS AND DISCUSSIONS

Demographics Characteristics of Service-Learning Faculty

Data collected for the questions 1 to 9 on the questionnaire is used to answer research question 1: *Who are the faculty that incorporate service-learning in their courses in Indiana higher education?* More than 78% of the respondents were from four-year public institutions and four-year private institutions (16.7%), with the remainder (5.2%) coming from two-year public institutions. Respondents represented 12 disciplinary areas, with the highest concentration (24%) in health profession related fields. Service-learning faculty in the state of Indiana were relatively well established in their institutions. More than a quarter were full professors (32.3%) and 50% were tenured. Most respondents (65.6%) had been teaching for

eleven or more years. Teaching was a high priority for survey respondents. Most (67.7%) ranked teaching as their most important professional responsibility (see Table 1).

Table 1
Demographic Characteristics of Service-Learning Faculty

Demographic Characteristics	Service-Learning Faculty	
Type of Institution	N = 96	%
four-year public college	75	78.1
four-year private college	16	16.7
two-year public college	5	5.2
two-year private college	-	-
Rank	N = 96	%
Professor	31	32.3
Associate Professor	21	21.9
Assistant Professor	15	15.6
Clinical faculty	14	14.6
Lecturer	8	8.3
Graduate student	2	2.1
Staff	5	5.2
Tenure Status	N = 96	%
Tenured	48	50
On tenure track but not tenured	10	10.4
Not on tenure track position, but my institution has a tenure system	32	33.3
No tenure system at my institution	6	6.3
Years of College Teaching	N = 96	%
1 - 5	17	17.7
6 - 10	16	16.7
11 - 15	18	18.8
16 - 20	18	18.8
21+	27	28.0
Academic Discipline Area	N = 96	%
Agriculture and Natural Resources	5	5.2
Biology, Chemistry, Physics and Physical Sciences	2	2
Business	9	9.4
Communications, Media, & Public Relations	9	9.4
Computer Science, Mathematics and Statistics	-	-
Education	9	9.4
Engineering and Technology	6	6.3
Fine and Performing Arts	3	3.1
Health Professions	23	24.0
Humanities	5	5.2
Liberal Arts, General Studies, and Multi/Interdisciplinary Studies	12	12.5
Social Sciences	13	13.5
Major Professional Responsibility	N = 96	%
Administrative	19	19.8
Teaching	65	67.7
Research	8	8.3
Advising	1	1.0
Professional Support or Coordinator	3	3.2

# of Service-Learning Courses Taught	N = 96	%
0	8	8.3
1	10	10.4
2	16	16.7
3	8	8.3
4	12	12.5
5 and 5+	42	43.8
Gender	N = 96	%
Female	66	68.8
Male	27	28.1
Prefer not to respond	3	3.1
Race	N = 96	%
American Indian or Alaska Native	-	-
Asian	3	3.1
Black or African American	3	3.1
Hispanic or Latino	1	1.0
Native Hawaiian or another Pacific Islander	-	-
White	85	88.6
Prefer not to respond	4	4.2

There was evidence of a relatively strong commitment over time by the respondents to the incorporation of service-learning and teaching. Fewer than 19% of the respondents reported having utilized service-learning zero or once, and a considerable majority (56.3%) indicated that they had utilized service-learning in their course four or more times. A majority of the service-learning faculty identified in this study are female (68.8%) and the vast majority (88.6%) are white.

Faculty Motivations

The survey questions 10 to 18 are used to answer research question 2: *What motivated the faculty to incorporate service-learning in their teaching efforts?* The survey questionnaire classified three categories of motivation factors: individual, institutional and outcome factors. To identify the individual factors, the respondents were asked to rank their TOP THREE individuals who motivated them to incorporate service-learning in their course(s). If motivated by a college administrator, which administrator (position) was it? To identify the institutional factors, the respondents were asked to rank their TOP THREE institutional factors that would motivate them to incorporate service-learning in their course(s). If motivated by institutional praise or recognition, what type of praise or recognition would motivate them? To identify the outcome factors, the questionnaire separates the outcome factors to student learning-related, faculty-related, and community-related outcome factors. The respondents were asked to rank their TOP THREE outcomes in each of the three outcome factors that would motivate them to incorporate service-learning in their course(s).

Table 2
Factors Motivating Faculty to Incorporate Service-Learning in a Course: Weighted Scores

Top Three Individual Motivation Factors	**Weighted Scores (WS)**
Personal research, passion & experience	124
Faculty	122
Service-learning director/coordinator	97
Top Three Institutional Motivation Factors	
Grant award	122
Professional development opportunity	111
Stipend or extra-compensation	107
Top Three Outcome Motivation Factors	
Student learning-related outcomes	
Provide students with "real-world" learning experiences or professional (or pre-professional) training	146
Improve students' understanding of the subject matter	91
Improve students' application of the course content	91
Improve students' soft skills (e.g. collaboration, communication, conflict resolution, sociability, work ethic, or leadership)	85
Faculty-related outcomes	
Service is a vital component of my personal and/or professional identity	166
Implement the innovative teaching pedagogy	121
I enjoy working with students in the service-learning project setting	118
Community-related outcomes	
Improve sense of civic responsibility	116
Improve understanding of social issues, places, or people	106
Improve participation in the community to affect social changes	99

Table 2 provides weighted scores for TOP THREE individual, institutional and outcome factors motivating faculty to incorporate service-learning in a course. To answer the survey questions in this motivation factors section, the respondents must enter the scale of 1, 2, 3 with "1" being the most influential position/role or motivating factor. The respondents ranked the choices as their top 1, top 2 and top 3, so the Table 2 scores are weighted based on the rankings. After the comparison of weighted scores, service-learning faculty's top 1 individual motivation factor is personal research, passion & experience (WS = 124), top 1 institutional motivation factor is grant award (WS = 122). For the outcome-related motivation factors, top 1 student learning-related motivation factor is to provide students with "real-world" learning experiences or professional (or pre-professional) training (WS = 146), top 1 faculty-related motivation factor is because service is an important component of my personal and/or professional identity (WS = 166), top 1 community-related motivation factor is to improve sense of civic responsibility (WS = 116). The top 1 faculty-related outcome factor is consistent with the top 1 individual motivation factor that faculty are mainly motivated by their personal belief, passion and research in the service-learning education.

Table 3
Sources of Encouragement by College Administrator and Percentage of Influence on Motivating Faculty to Incorporate Service-Learning in a Course

Source of Encouragement by College Administrator	Influence (I) %
Dean or Associate Dean	34.6
President/Chancellor, Vice President/Vice Chancellor, or Associate President	23.1
Service-Learning Office/Teaching Center Director	23.1
Department Chair	19.2

If respondents ranked "college administrator" as one of their top three individual factors, the respondents will be prompted on the survey for the follow-up question: If faculty are motivated by a college administrator to incorporate service-learning in your course(s), which administrator was it? The respondents then must choose only a college administrator position/role from the options for the follow-up question. According to the data on Table 3, the encouragement from Dean or Associate Dean is most influential (I = 34.6%) to motivate faculty incorporating service-learning in their course.

Table 4
Sources of Type for Institutional Praise/Recognition and Percentage of Influence on Motivating Faculty to Incorporate Service-Learning in a Course

Source of Type for Institutional Praise/Recognition	Influence (I) %
Letter of commendation from college administrator(s)	22.5
Having it counted toward Promotion and Tenure Evaluation	20.0
Recognition in college newsletter or local newspaper	20.0
Other	15.0
Recognition by certificate from institution	12.5
Recognition by Governing Board or Board of Trustees	10.0

If respondents ranked "institutional praise or recognition" as one of their top three institutional factors, the respondents will be prompted on the survey for the follow-up question: If motivated by institutional praise or recognition to incorporate service-learning in your course(s), what type of praise or recognition would motivate you? The respondents then must choose only a type of institutional praise or recognition from the options for the follow-up question. According to the data on Table 4, the letter of commendation from college administrator(s) is most influential (I = 22.5%) to motivate faculty incorporating service-learning in their course. This result is consistent with the data on Table 3. The Dean or Associate Dean's encouragement is most influential (I = 34.6%) to motivate faculty. Based on the two findings, Dean or Associate Dean's encouragement, praise or recognition play the most influential role to motivate faculty incorporating service-learning in a course.

Table 5
Volunteered or Assigned to Incorporate Service-Learning in a Course

Incorporating Service-Learning in a Course	**N = 96**	**%**
Volunteered	84	87.5
Assigned	7	7.3
Other	5	5.2

The question 14 is to survey the respondents if they are volunteered or assigned by department to incorporate service-learning in their course. The data on Table 5 shows that more than 87% respondents are volunteered to incorporate service-learning in their course.

Table 6
Incorporating Service-Learning in a Course Even Without Any Institutional Support

Incorporating Service-Learning in a course even without any institutional support	**N = 96**	**%**
Yes	82	85.4
No	10	10.4
Other	4	4.2

The question 15 is to survey the respondents if they would incorporate service-learning in their course even without any institutional support. The data on Table 6 shows that more than 85% respondents would incorporate service-learning in their course even without any institutional support. The results from Table 5 and Table 6 are aligned with the result from Table 2 that faculty are most motivated by their personal passion, experience and research in service-learning in terms of the individual motivation factors.

Faculty Satisfaction

The survey questions 19 to 26 are used to answer research question 3: *How the faculty are satisfied with the supports for teaching service-learning courses?* The questions survey respondents' level of satisfaction on received support from faculty, Department Chair, Dean/Provost, President/Chancellor, Service-Learning Office/Teaching Center, students or community members. Service-learning faculty were asked to rate their level of satisfaction on a Likert scale ranging from "very dissatisfied" (1) to "very satisfied" (5). The mean scores for level of satisfaction on Table 7 show that community members and students are the most satisfied supports for faculty's efforts in service-learning education (mean of 4.0 and above). The support from President/Chancellor is the least satisfied (neither satisfied nor dissatisfied) with mean of 3.1. Overall, faculty are somewhat satisfied with received supports for their efforts in service-learning education (mean of 3.8, see Table 7).

Table 7
Support for Efforts in Service-Learning Education and Level of Satisfaction

Support for Efforts in Service-Learning Education	Level of Satisfaction (Mean)
Support from Faculty colleagues	3.3
Support from Department Chair	3.4
Support from Dean or Provost	3.2
Support from President/Chancellor	3.1
Support from Service-Learning Office/Teaching Center	3.9
Support from Students	4.0
Support from Community Members	4.3
Overall satisfied with received supports	3.8

Note. Level of Satisfaction: 1 = Very Dissatisfied, 2 = Dissatisfied, 3= Neither Satisfied nor Dissatisfied, 4 = Satisfied, 5 = Very Satisfied

Relationship between Motivation and Satisfaction

The survey questions 27 to 28 are designed to answer research question 4: *Are the faculty inclined to continue and/or expand their involvement in service-learning in the future??* Service-learning faculty were asked to select their choices on a Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5). The data on Table 8 shows that more than 88.3% of respondents plan to continue the involvement in service-learning education, whereas, about 61.7% of respondents plan to expand their involvement in service-learning education in the future.

Table 8
Continue or Expand the Involvement in Service-Learning Education in the Future and Level of Agreement

Statement	SA %	A %	N %	D %	SD %
I plan to continue the involvement in service-learning education in the future	67.0	21.3	8.5	2.1	1.1
I plan to expand my involvement in service-learning education in the future	37.2	24.5	26.6	10.6	1.1

Note. SD = Strongly Disagree, D = Disagree, N= Neither Agree nor Disagree, A = Agree, SA = Strongly Agree

CONCLUSION

Scholars across disciplines are urged to identify how service-learning can enhance subject matter learning. This study is a small step and a contribution to the modest literatures in that direction. Lack of appropriate encouragement, satisfaction and support may inhibit the sustained growth of service-learning in the higher education. Although this survey provides insight about many other facets of the faculty experience to service-learning, the evidence offered in this study is focused on motivation and satisfaction. From the data the study can conclude that faculty involved in service-learning tend to be motivated more by personal passion and experience in service-learning than by student learning concerns or institutional factors.

Furthermore, the faculty in this study are more satisfied with the supports from community members and students. The service-learning faculty reported that they were less satisfied with the support from President or Chancellor. More respondents plan to continue the involvement in service-learning education, whereas, less respondents plan to expand their involvement in service-learning education in the future. Respondents also feedback that the greater time and task requirements of service ventures, needing to be rewarded in the promotion and tenure process, and the course design challenges in different subject areas.

The findings of the research project bring numerous positive impacts on student learning and development, project director's professional advancement, community partners and community issues, and the institutional goals. First, the improved and expanded service-learning course design helps students internalize real-world experience successfully. Students will participate and engage more learning experiences via various service-learning courses to learn more applications and deeper understanding. Students can apply practical civic skills at different levels within the classroom and outside of the classroom. The graduates equipped with strong civic skills and experiences should be able to stand out in the job interviews, succeed in their future career and later feedback to their communities.

Second, this study advanced the project director's research design and research method to conduct a service-learning study independently. The research findings will be helpful to the project director's efforts in service-learning education and professional services. It also strengthens the project director's statistical skills and improve the project director's technical writing in academic journal paper publication. Third, in studying the issues challenging the service-learning education in the state of Indiana, the results of the research will provide clear directions for faculty and higher education administrators in the state of Indiana to motivate more educators and encourage more service-learning courses to the community. Fourth, this research helps fulfill the concurrent higher education strategic goals. The service-learning research aligns with the mission of higher education systems and promotes its partnerships with local community. This is a high priority for the University/College that has committed to advance and expand community engagement to the next level to achieve the goal of becoming the center of excellence for education, information, economic development and culture.

Lastly, the research findings provide clear directions as sustainable solutions for institutions, research funding sponsors, the field of service-learning and higher education administrators to motivate, encourage and satisfy more faculty incorporating service-learning in their teaching with the helpful supports. Continuing to discover faculty motivations and satisfactions from teaching service-learning courses will strengthen the efforts to promote the service-learning education at colleges and universities across the nation.

REFERENCES

Abes, E. S., Jackson, G., & Jones, S. R. (2002). Factors that motivate and deter faculty use of service-learning. *Michigan Journal of Community Service Learning*, 9(1), 1-17.

Hammond, C. (1994). Faculty motivation and satisfaction in Michigan higher education. *Michigan Journal of Community Service Learning*, 1, 42-49.

McKay, V. C. & Rozee, P. D. (2004). Characteristics of faculty who adopt community service-learning pedagogy. *Michigan Journal of Community Service Learning*, 10(2), 21-33.

Marullo, S., & Edwards, B. (2000). Service-learning pedagogy as universities' response to troubled times. *American Behavioral Scientist*, 43(5), 746-755.

Patel, H. S. (2004). Assessment of the personal and professional attributes of educators who utilize service-learning. (Doctoral Dissertation, Iowa State University, 2004). *Dissertation Abstracts International*, DAI-A 65/07, p. 2479

Ward, K., & Wolf-Wendel, L. (2000). Community-centered service learning. *American Behavioral Scientist*, 43(5), 767-780.

Westheimer, J., & Kahne, J. (1998). Education for action: Preparing youth for participatory democracy. In W. Ayers, J. Hunt, & T. Quinn (Eds.), *Teaching for social justice* (pp. 1-21). New York: The New Press.

Appendix A – Survey Questionnaire

Demographics Information

Please respond to the following questions in this section as they are related to your demographics.

1. Please select the type of your institution.

four-year public college
four-year private college
two-year public college
two-year private college

2. Please select your current academic rank or position.

Professor
Associate Professor
Assistant Professor
Clinical faculty
Adjunct (Part-time) faculty
Graduate student
Staff
Other (please specify) _____

3. Please select your tenure status.

Tenured
On tenure track but not tenured
Not on tenure track position, but my institution has a tenure system
No tenure system at my institution
Other (please specify) _____

4. Please select the number of years that you have been teaching in college.

Not teaching in college
1 - 5 years
6 - 10 years
11 - 15 years
16 - 20 years
21+ years

5. Please select the response below that most closely matches your academic discipline area.

Agriculture and Natural Resources
Biology, Chemistry, Physics and Physical Sciences
Business
Communications, Media, & Public Relations
Computer Science, Mathematics and Statistics
Education
Engineering and Technology
Fine and Performing Arts
Health Professions
Humanities
Liberal Arts, General Studies, and Multi/Interdisciplinary Studies
Social Sciences
Other Fields (please specify) _____

6. Please select your **major** professional responsibilities held **(choose only one answer).**

Administrative
Teaching
Research
Advising
Professional Support or Coordinator
Other (please specify) _____

7. Please select the number of service-learning courses taught in the past five years.

0
1
2
3
4
5 and 5+

8. Please select your gender.

Female
Male
Other
I prefer not to respond

9. Please select your racial or ethnic identification.

American Indian or Alaska Native
Asian
Black or African American
Hispanic or Latino
Native Hawaiian or other Pacific Islander
White
Other
I prefer not to respond

Motivation Factors

Please respond to the following questions in this section as they are related to your motivation information.

A. Individual Factors – Hidden from the Qualtrics survey

10. Please rank the top THREE **individuals** who motivated you to incorporate service-learning in your course(s) **(enter the scale of 1, 2, 3 with "1" being the most influential).**

College administrator
Service-learning coordinator/director
Faculty
Student
Community representative
National speaker
Personal research & passion
Other (please specify) _____

(A follow-up question only if "college administrator" is selected from Q10.)

11. If motivated by a college administrator to incorporate service-learning into your course(s), which administrator was it? **(choose only one answer)**

Not motivated by college administrator
President/Chancellor, Vice President/Vice Chancellor, or Associate President
Dean or Associate Dean
Department Chair
Service-Learning Office/Teaching Center Director
Other (please specify) _____

B. Institutional Factors – Hidden from the Qualtrics survey

12. Please rank the top THREE **institutional factors** that would motivate you to incorporate service-learning in your course(s) **(enter the scale of 1, 2 ,3 with "1" being the most motivating factor)**.

Course release
Stipend or extra-compensation
Institutional praise or recognition
Professional development opportunity
Grant award
Travel to national or local service-learning conferences
Other (please specify) _____

(A follow-up question only if institutional praise or recognition is selected from Q12.)

13. If motivated by institutional praise or recognition to incorporate service-learning in your course(s), what type of praise or recognition would motivate you? **(choose only one answer)**

Not motivated by institutional praise or recognition
Letter of commendation from college administrator(s)
Recognition by Governing Board or Board of Trustees
Recognition by certificate from institution
Recognition in college newsletter or local newspaper
Other (please specify) _____

14. Do you voluntarily incorporate service-learning in your course or is it assigned/required by the department?

Voluntarily
Assigned
Other (please specify) _____

15. Would you incorporate service-learning in your course even without any institutional support?

Yes
No
Other (please specify) _____

C. <u>Outcome Factors – Hidden from the Qualtrics survey</u>

16. Please rank the top THREE **student learning-related** outcomes that would motivate you to incorporate service-learning in your course(s) **(enter the scale of 1, 2, 3 with "1" being the most motivating outcome).**

Improve students' understanding of the subject matter
Improve students' learning of core competencies
Improve students' application of the course content
Improve students' self-confidence
Improve students' soft skills (e.g. collaboration, communication, conflict resolution, sociability, work ethic, or leadership)
Provide students with "real-world" learning experiences or professional (or pre-professional) training
Provide an effective form of experiential education
Service-learning course is required for degree or graduation
Other (please specify) _____

17. Please rank the top THREE **faculty-related** outcomes that would motivate you to incorporate service-learning in your course(s) **(enter the scale of 1, 2, 3 with "1" being the most motivating outcome).**

Implement the innovative teaching pedagogy
Improve my course evaluation
Achieve my disciplinary goals
Bring positive impact to my tenure promotion or annual performance review
Service is an important component of my personal and/or professional identity
I enjoy working with students in the service-learning project setting
I see respected colleagues actively participate in service-learning
I was required or assigned to teach the service-learning course as a part of my teaching load
Other (please specify) _____

18. Please rank the top THREE **community-related** outcomes that would motivate you to incorporate service-learning in your course(s) **(enter the scale of 1, 2, 3 with "1" being the most motivating outcome).**

    Improve students' understanding of social issues, places or people
    Improve students' participation in the community to affect social changes
    Improve students' commitment to rectify social injustices
    Improve students' sense of civic responsibility
    Improve students' volunteerism in the community
    Improve college-community partnerships
    Promote multi-cultural understanding
    Prepare students for employment
    Other (please specify) _____

Satisfaction

Please respond to the following questions in this section as they are related to your satisfaction information.

Please indicate the extent to which you agree or disagree with the following statements. (5-Strongly Agree**,** 4-Agree**,** 3-Neither Agree nor Disagree, 2-Disagree, 1-Strongly Disagree)

19. I am satisfied with the support that I received from my Faculty colleagues for my efforts in service-learning education.

20. I am satisfied with the support that I received from my Department Chair for my efforts in service-learning education.

21. I am satisfied with the support that I received from my Dean or Provost for my efforts in service-learning education.

22. I am satisfied with the support that I received from the President/Chancellor for my efforts in service-learning education.

23. I am satisfied with the support that I received from the Service-Learning Office/Teaching Center of the institution for my efforts in service-learning education.

24. I am satisfied with the support that I received from students for my efforts in service-learning education.

25. I am satisfied with the support that I received from community members for my efforts in service-learning education.

26. Overall, I am satisfied with the supports that I received for my efforts in service-learning education.

The Relationship between Motivation and Satisfaction – Hidden from the survey

Please indicate the extent to which you agree or disagree with the following statements. (5-Strongly Agree**,** 4-Agree**,** 3-Neither Agree nor Disagree, 2-Disagree, 1-Strongly Disagree)

27. I plan to continue the involvement in service-learning education in the future.

28. I plan to expand my involvement in service-learning education in the future.

29. Any additional comments:

Please enter any additional comments you may have on service-learning course.

OPPORTUNITIES AND CHALLENGES IN INTER-COUNTER EDUCATIONAL COLLABORATION BETWEEN THE UNITED STATES AND THE PHILIPPINES

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ABSTRACT

The Mission of Jesse H. Jones (JHJ) School of Business is as follows: "The Jesse H. Jones School of Business is a constituent part of Texas Southern University, a comprehensive metropolitan university, located in Houston, Texas. We…provide quality education in an entrepreneurial, global context through effective teaching, theoretical and applied research, and community engagement in a student-centered environment.". In this paper we will investigate the challenges encountered when students from JHJ attempted to jointly complete a web design project with a web design class at Southern Leyte State University-Thomas Opus in the Philippines. The goal was to provide our students with access to international students to experience the different challenges that occur when working with people in a global environment. As the case will show, many challenges were encountered, both culturally and technologically. Ultimately these challenges were too difficult to overcome at this time to complete the project successfully, however valuable lessons were learned through the process.

INTRODUCTION

The Philippines is a Southeast Asian island country located in the Western Pacific Ocean. The country's name comes from Phillip II who was King of Spain when they colonized the islands in the 16th century. Spanish rule lasted for 333 years followed by American rule for 48 years from 1898-1946. Consequently, the prevailing culture is an amalgamation of Filipino and Spanish Catholic traditions with an American influence. The Philippines is a developing third world county and their education budget reflects this reality. The educational institutions are very resource strapped and, over time, have learned to adapt and function with what is little is available. For example, a classroom may not have enough chairs and desks and the student may have to share one or few copies of the textbook. There is almost no equipment or access to technology to facilitate learning (UNESCO, 2014). However, despite these difficulties or, perhaps, as a result of the same, Filipinos greatly value education. This is reflected in the

extremely competitive job market with even low-level jobs such as at a convenient store or at a fast-food restaurant requiring college degrees.

Filipinos have a deep regard for education, which they view as a primary avenue for upward social and economic mobility (Peng, 2018). Middle-class parents in the Philippines are willing to make tremendous sacrifices to provide higher education for their children. Filipino education is patterned after the American system, with English as the medium of instruction. Schools are classified into public (government) or private (non-government). Many of the universities in the Philippines have begun offering free tuition to give more people the opportunity to get an education. Until recently, high schools only went through the 10th grade. Upon completion of the 10th grade students would enter university education, therefore university students were much younger than what we see in the United States.

At the school level, the Philippines has finally moved to a 13-year system from a 10-year system and was one of the last Asian countries to do so. This will greatly increase their competitiveness in the local and international markets and to attain higher education.

The Philippines uses English as the medium of instruction. As a result of years of American colonial rule, the Filipinos have adopted the same attitude to education as Americans. They emulate the American education system with schools classified as public (government funded) or private. They have a high regard for education and believe that a good education is a path to success and prosperity.

EDUCATION IN THE PHILIPPINES

The Department of Education (DepEd) is the main government agency in the country responsible for the implementation of basic education, particularly primary, secondary and non-formal education, including in culture and sports. Two other government offices are responsible for higher education and skills trainings. The Commission on Higher Education (CHED) manages higher education, while the Technical Education and Skills Development Authority (TESDA) administers the postsecondary, middle-level manpower training and development (Phil Ed, 2020).

Admission to higher education requires a High School Diploma. There are no national entrance examinations, however many higher education institutions have their own entrance exams. Standard additional requirements apply to some programs. Higher education in the Philippines is unitary, i.e. higher education institutions (universities, colleges, academies, institutes, schools) offer both vocational and academic/research programs. The Philippines has both public and private higher education institutions. The private sector includes both religious and secular education institutions, both of which fall under the supervision of the Commission of Higher Education (CHED) (Ricafort, 2020).

Higher education is organized in 3 stages: Bachelor, Master and Ph.D. There are also Associate programs. Information on the prescribed scope and structure of a large number of programs can be found on the CHED website. Associate programs last 2 years, are vocational in nature and relatively small in number. Some of the most common Associate programs are in

areas such as hotel and restaurant management, electronic/electrical technology, and information technology.

Most bachelor's programs are of 4-year duration, although some (such as technology-based programs) can take 5 years. Program scope is expressed in units. Depending on the specialization, the scope of a bachelor's program can vary from around 150-210 units. Education in the Philippines is handled by three agencies separated by level of education. The Department of Education (DepEd) is over primary and secondary education, while The Commission on Higher Education (CHED) is responsible university education, and the Technical Education and Skills Development Authority (TESDA) manages technical-vocational courses (Philippines Ministry of Education, 2008).

The Technical Education and Skills Development Authority (TESDA) was established in 1994 with a focus toward vocational education to develop practical skills in various areas such as computer system servicing, automotive, food and beverage, etc.

The Commission of Higher Education is committed to giving Filipinos access to world class education. They apply a process of continuous improvement to their curriculum and constantly review the same with a goal to aligning what is taught with local and international job market requirements. They strive to provide high quality and relevant education via innovations such as educational collaborations with other countries, joint degrees, and remote education. At present they offer over a hundred programs in various academic disciplines such as Science, Mathematics, Information Technology, Business, Management and Teacher Education (ADB, 2009). The Commission awards scholarships, and faculty development programs. The also offer support to upgrade laboratories, libraries and for development of instructional materials.

TECHNOLOGY

With the continued advancement of technologies, interaction among professors and students can take place without the necessity of being present in the same place at the same time. However, absence of effective communication or poor coordination can result in failed projects (Darling-Hamilton et al., 2014). The inclusion of technology-based learning into school curriculum in the United States along with the integration of the Internet into the learning process has helped students attain far reaching improvements (Thigpen, 2015). Pew Research Center and Elon University predict that in 2025, the Internet will be “like electricity:” pervasive yet imperceptible (Anderson, 2014). Internet technologies provide the opportunity to facilitate communication, interaction, and collaboration among users, and has become prevalent in educational environments around the world (Barjaktarović, L., Stanković, JS, Gavrilović, JM., 2014). Countries that have been able to include technology-based learning, as well as providing internet access to their students, have seen similar success. However, not all countries have had the luxury of the same level of technology. Internet access is limited in some countries, inhibiting students from having access to educational opportunities (Adiviso, 2010). The Philippines is a country where education is limited by the access to technology and the limitation and reliability of the Internet (Globe, 2016).

Per a recent Commission on Human Rights of the Philippines (CHRP) report only 55% of Filipinos and 26% of public schools have access to the internet. As a result, the country failed to achieve its goal of providing digital literacy for all. This severely disadvantages Filipino students to achieve the education they need to be competitive and marketable. The country has been aware of this digital divide long before COVID-19 exacerbated the situation. For example, in 2017 the National Broadband Plan of the Department of Information Communications and Technology (DICT) reported that "The Philippines lags behind its peers in terms of affordability, availability and speed of internet access". While digital access has improved a lot more needs to be done to bring the Philippines digital access on par with other Asian and advanced countries.

According to internet speed specialists Ookla the global average download speed as of September 2021 in the Unites States was 113.25 Mbps on fixed broadband and 63.15 Mbps on mobile. These are both notable improvements over the scores of 85.73 Mbps broadband and 17.95 Mbps mobile just one year earlier in September 2020. As of November 2021, even though the average speed for the Philippines is 46.44 Mbps this takes into account the larger cities such as Manila, where fixed broadband internet is available. Most users do not have access to fixed broadband internet access, even in Manila, so they are forced to use mobile connections, which has an average speed of 18.68 Mbps. The price of the broadband internet is also a deterrent for those in the Philippines. The average cost per month is PHP 2,253 (47.15/month). (https://www.statista.com/statistics/1155438/philippines-internet-connection-speed-by-type-2019/). While this is significantly lower than the $ 65.18 in the United States, the income for Filipinos is much less, making the PHP 2,253 unaffordable for most residents. These speeds can drop significantly in the outlying area and in the mostly rural areas of the Philippines, where fixed broadband is almost impossible to obtain, so people are forced to use mobile connections which can be as slow as 3.52 Mbps. All internet activity is accessed over the wireless network where 2g is still the only option available in many areas. There has been a push to upgrade these wireless towers to 3g in the rural areas and to 4g in the larger urban such as Manila and Cebu. While the mobile access is less expensive, users typically purchase their mobile internet access in "loads", typically PHP 100. These loads may only last one to two days, depending on the type and amount of internet usage. When their PHP 100 load has been depleted, it may take some time to come up with another PHP 100 to purchase another load.

Among the faculty and administrators in schools throughout the Philippines, there is an interest and willingness to adopt new technology-based learning methods. But they cite as a continuing challenge of how to foster this type of innovative teaching because of the limitations of technological infrastructures at their schools (Arinto, 2016). The lack of technology and sufficient internet capabilities is not the only obstacle associated with working with students from the Philippines.

LANGUAGE BARRIER

The language of instruction has been a much-debated topic. For a country dispersed over 7,107 islands, with 11 languages and 87 dialects, colonized by Spain for more than 300 years, and educated by the Americans, the decision to pick a particular language of instruction has been

very controversial. The languages used for instruction have switched from Spanish to *Tagalog,* to English to the local vernacular, including some Chinese languages, and Arabic, which is used in the southern part of the country. In elementary and secondary schools, students are required to take Tagalog, the official language of the Philippines, even in areas where Tagalog in not the dialect that is spoken. These same students are also required to take English. The books and other material for classes are written in English, however Tagalog or another Filipino dialect is primarily spoken in school. Even though English is taught in school from elementary through secondary schools, students don't speak English outside of the classroom or at home, therefore the ability for students to communicate in English is poor.

CULTURE

The joint project between TSU and SLSU-TO promised to be a challenge from the outset. It was clear that technology issues in the Philippines would be monumental. However, the cultural challenges proved to be as defiant. Of course, Geert Hofstede's (2001) research on the dimensions of national culture provided insights about the potential outcome of this joint TSU/ SLSU-TO project.

Hofstede defined culture as the collective mental programming of a group of people, not the individual, by the same education and life experiences. He developed five (5) dimensions of national culture. Namely, the following basic value orientations:

POWER DISTANCE

This dimension focuses on the extent to which less powerful members within a country expect and accept the unequal distribution of power. In high power distance cultures such as Russia and China, wealth is concentrated among a small, elite group of individuals where this inequity is accepted as "the way things are." In the United States (US), a low power distance society, subordinates often address their organizational superiors on a first name basis. Independence tends to be highly valued.

Like Russia and China, the Philippines represents a high-power distance culture. High power distance in the Philippines is characterized by strict hierarchies and centralization in organizations. Inherent inequalities are widely accepted. As such, subordinates rarely take the lead on projects, tend to look to their bosses for guidance, as well as hold their organizational superiors in high esteem and not question their decisions. The disparity between the US and Philippines cultures along this dimension is problematic. This Filipino cultural dimension has the potential to (1) stifle creativity, (2) slow project progress and (3) make the organization less responsive to change. Each one of these challenges threatens the success of the TSU/SLUS-TO joint project.

INDIVIDUALISM VERSUS COLLECTIVISM

The US is ranked as the leading individualistic culture. Individualistic cultures are distinguished from collectivistic ones by the extent to which individuals look after themselves compared to their in-groups. Individualism places greater value on one's own decision, whereas collectivism places greater value on one's group such as family, village, or company. The Philippines is considered a collectivistic culture. In collectivistic societies, loyalty to one's group is paramount and overrides most societal rules and regulations. While every individual in the individualistic culture is responsible for him/herself, the group in a collectivistic culture protects its individual members. For example, instead of "looking out for No. 1" as Americans might say, Filipinos are more likely to say, "family first." Based on sources across the web, the US is often cited as one of the most innovative countries in the world. A contributing factor to this innovativeness is American individualism determined to be more successful than anyone else. The Philippines, however, as a collectivistic society would naturally lack this single-mindedness. Collective accomplishments which tend to stifle individual idea are crucial to relationships. In fact, in Japan - - another highly collectivistic culture - - there is a saying that characterizes creative behavior in the Philippines, "the nail that sticks out gets the hammer."

MASCULINITY VERSUS FEMINITY

Masculinity and femininity as distinguished by Hofstede are not limited to gender roles as defined by matriarchal or patriarchal societies. Hofstede defines masculine cultures as ones in which success and being strong and fast are seen as positive characteristics. Whereas feminine cultures tend to distinguish less between male and female roles and see modesty as a virtue. In masculine cultures, men are expected to be assertive, tough, and focused on material success, while women are expected to be modest, tender as well as care for the weak. This role distinction is consistent with the matrifocal village life in the Philippines, where women are expected to be caretakers and nurturers.

UNCERTAINTY AVOIDANCE

Uncertainty avoidance refers to a measure of the extent to which people are threatened by ambiguous or unknown situations. The Philippines, like the US, is regarded as a low uncertainty avoidance society. These societies exhibit a more relaxed attitude in which practice counts more than principles. They believe that rules should exist only when necessary, and that they should be abandoned or changed when they do not work. However, the fact that schedules are flexible, and punctuality does not come naturally is one element that separates the US from the Philippines within this dimension. The US tends to be monochronic - - where time is viewed linearly. Monochronic societies take deadlines and schedules seriously. Conversely, polychronic societies have a cyclic time perception. They consider timeframes useful, but do not see the failure to achieve them as negative.

LONG-TERM VERSUS SHORT-TERM ORIENTATION

Societies with a long-term orientation exhibit a preference to maintain traditions and norms with suspicion toward societal change. While societies with a short-term orientation take a more pragmatic short-term point of view. For short-term oriented cultures, "the focus is on the pursuit of happiness rather than the pursuit of peace of mind (Ebaeguin & Stephens, 2014)." Both the US and Philippines tend to be normative in their approach to situations. Exhibiting an ample respect for tradition, these societies are less likely to save for the future, as well as focus on achieving quick results.

Using Hofstede's dimensions of culture, it is clear that there are a number of challenges that threaten the success of the joint project between the two (2) universities. The drivers of the Philippines culture when compared with those of the US exhibit a divergence for only two (2) of the five (5) of Hofstede's dimensions. Namely, the cultures of the US and Philippines diverged along the Power Distance and Individualism versus Collectivism dimensions. These two dimensions, however, are crucial to the success of a project such as the proposed joint project. The Power Distance dimension potentially limits creativity and initiative. Subordinates waiting to follow organizational leaders' instructions have the potential to block or limit creativity, slow project progress and de-rail the success of the project depending on the objectives of individual leaders. The difficulty of this initiating our joint project is further exacerbated by the Philippines' loyalty to the 'in-group.' This propensity can detract from individual self-reflection which is critical to skills development and assessment of effectiveness such as "how can I do what I do better?"

METHODOLOGY

As a research tool, the case study method is both appropriate and effective for investigating complex subjects, especially when the study offers a unique opportunity to observe behavior that is not in a controlled envorinment. The growing interest in case studies as research tools serves a useful purpose for a phenomenon that (a) is broad and complex, (b) needs a holistic, in-depth investigation, and (c) cannot be adequately studied outside the context in which it occurs (Benbasat et at. 1987; Feagin, 1991; Yin 2003). The case study makes it possible to "retain the holistic and meaningful characteristics of real-life events" (Yin, 1984 p14). A holistic, in-depth investigation which follows a naturalistic approach to generating a qualitative understanding of an event or organization, certainly offers advantages. The case research strategy allows for a great deal of flexibility and individual variation. This makes the case study an ideal methodology for investigating the concerns of this project. Events like the one discussed in this paper are difficult to study outside the context in which it occurs (Benbasat et al., 1987). In this case, the event is a onetime occasion and was studied as the project progressed. Therefore, the case study method allows the researcher to conduct probing interviews as well as engage in ethnographic observations.

THE COLLABORATION

With increasing global business opportunities, it is advantageous for our students to be exposed to working with other students from other countries, such as the Philippines. Doing so influences knowledge sharing and enhances the learning process. Based on the technologies of the countries involved, the approach to teaching and learning/collaboration changes (Thigpen, 2015).

To further investigate the opportunities and challenges, a project was started between Texas Southern University (TSU) and Southern Leyte State University-Thomas Opus (SLSU-TO). SLSU-TO is located in the southern Philippines on the island of Leyte. SLSU-TO has over 8,000 students, with degree programs in business administration (management, marketing, accounting, and MIS) and education. Education at public universities such as SLSU-TO is free. The majority of the island is rural and has very limited internet access, even below the average internet speed of the Philippines. The project was to consist of collaboration among MIS students at TSU and SLSU-TO to design and create a web site. Challenges that must be addressed, in addition to internet speed, include the web design knowledge level of the MIS students at the different schools, the availability of technology tools, the teaching methods used at each school, and basic cultural issues.

Web design is a subject taught both at TSU and SLSU-TO. For the successful collaboration, students need to have a similar level of understand of web design languages; therefore, faculty at both universities need to be aware of the different teaching methods and level of instruction at each university. There are many technologies available for web design, but consideration must be given to the cost and availability of technology tools because of the limited resources available for the students in the Philippines. For this reason, free web design software that is available over the Internet was the most appropriate solution. However, the reliability of the internet connection at SLSU-TO proved to be a challenge.

The schools in the Philippines (K-12 and university) are taught in English, so students tend to understand English; however, English is typically not spoken at home, so the students have limited English speaking skills. Because of this, the Filipino students tend to be shy when communicating with native English speakers. The culture in the Philippines is also very casual when it comes to time. If a meeting is scheduled for 3:00pm it cannot be expected that students will be on time. Therefore, synchronous meetings via communication technologies can be frustrating for those waiting for attendees to join. Asynchronous communication was thought to be a more appropriate method, however we still felt we needed to have the synchronous aspect for consistency and for the fostering of a shared project between the two countries.

While other challenges are apparent, this was an opportunity for students of TSU and of SLSU-TO to bridge the gap between two countries and cultures to work toward a common goal. Using technology tools makes this type of experiential learning possible and becomes the foundation to expand the knowledge base of students of both countries.

At the beginning of the project there was a meeting with the teacher from SLSO-TO. The textbook they were using and some of the assignments the students had completed were evaluated. They seemed to be as far along as our TSU students were, and their projects showed

that they had a good understanding of the subject matter. Yet their perception was that they could not match the knowledge level of American students. I've been to this school on several occasions and have given lectures in classes and have spoken to the entire student body on several occasions. They were always very friendly and receptive, as a group, but when it came to one-on-one interaction it was much more challenging.

We attempted to conduct this joint effort, but it was not successful because of the issues mentioned above. We again tried in the following semester but there was not much interested from the students from the Philippines, which can be attribute to their culture issues that were apparent on our first attempt. They were uncomfortable working with students from America because they felt their Filipino education was inferior to that of American students. Therefore, they thought they would be embarrassed. These assessments are not just conjecture. A student who attends SLSU-TO (Menchina) is an MIS major. I was able to get much feedback from her because her English was very good.

Menchina's thoughts were as follows: "…we are not smart like American students. We don't have our own books to use. We have to share them with the other students in the class. The only time we can work on projects is when we are at school with someone who also has a book. We don't have computers at home and we don't have laptops. A couple students do, but their internet connection is so slow that they can't do much more than use Facebook. To communicate with the American students, we would have to come to campus at strange hours, often late in the evening or early in the morning. The busses and multicabs are not running at that time, so unless someone has their own transportation (which would be a motor scooter because cars are not abundant in the area and beyond the affordability of most who live there) then we can't get to school." It should also be noted that this is a small rural area, and this is the only free pubic university that can be accessed by people who live in the region. Many students come from several miles each day to attend school. There is no dorm living. Students have to take a "multicab" or bus, which they have to catch outside their house every morning. This transportation is not free, so if the students had to come to school multiple time per day for the online meetings, it could be very costly for them, and many could not afford to do so. Often these transportation methods are full, so it is not uncommon to see many students actually riding on top of the busses. I have been to the Philippines many times and I cringe every time I see this.

When asked about her thoughts regarding interacting with the American students she responded "We are all too shy to talk to them during video chat. Our English is not good enough so they may laugh at us. Plus, we don't have nice things to wear so we don't want them seeing us. They are probably so much smarter that we are that we wouldn't be able to do any of the work."

According to a student at TSU, "I thought it was going to be really fun and educational, but it was impossible to get in touch with the students, and when the few times we did we weren't able to get anything done because they couldn't get on the web design site. We were using Weebly to create the website, but they couldn't get it to load on their computers. We also tried Wix but that didn't work either. It was so frustrating. Only one student would attempt to talk with us. The others would just giggle. It was obvious we weren't going to get any work done."

As the instructor of the TSU students, it was evident that the students were growing very impatient. They came in early and stayed late to accommodate the schedule of the students at SLSU-TO. They soon realized that their efforts were in vain, and they quickly lost interest in the project. The project was not a total failure though. The students at TSU got to realize that the availability to technology in America is greater than many other places in the world. They have been using the internet for years and assumed the pervasiveness of the internet was everywhere. A TSU student commented that he "couldn't believe that these students didn't have access to the internet. I don't know how they get their assignments done. I would be totally lost without it." Another commented "I've been using the internet as long as I can remember. I use it for almost everything: social media, shopping, schoolwork and so many other things. I couldn't imagine my life without it."

I was very disappointed that we could not implement the joint web design project, as was the instructor from SLSU-TO. The instructor from SLSU-TO stated that "I am very embarrassed that our school and students let you down. We are just so far behind so many other countries, especially America. I fear it will be a long time before we catch up, but we do the best with what we have." We both agreed it would have been a valuable opportunity for students from both countries. But during the process itself, much was learned about the challenges that can exist when students from two different cultures try to work together. I haven't totally given up. I would still like to eventually make this project work. I think the outcome would be very promising and be educational for students from both countries. For the students from the Philippines, I think it would give them some needed confidence that they can compete with students from anywhere. I've seen their work…I'm sure they can if given the opportunity

CONCLUSION

If we wait for conditions to be perfect, we may never get the opportunity to put this idea into practice. We must start from somewhere. Collaboration between the two schools should begin again. It will be a work in progress and the whole process will only get better with time.

This is a golden opportunity that will benefit many students on both sides of the institution. It will enhance students' quality of education and expand their horizon of understanding people that reside in a different geographical area, different culture and learning the way other people live.

We understand that the internet might not be fast, that there are challenging living conditions in the Philippines, and communication barrier is significant, but even with that, we believe it is a great opportunity that needs to be pursued. Even though efforts in the past to start this initiative have not materialized, the program needs to begin, and how things evolved will be noted. It will also bring much personal satisfaction and gratification to all the people that subscribed to the initiative. A truly self-satisfaction endeavor.

I can only imagine the great opportunities this program will have in the lives of all the students that will be involved. They will learn something that is very valuable and priceless. A lesson that will yield dividends in their lives in the future. Lastly, we think if one collaborates,

thinks through the issues, and communicates constantly about the program, true solutions will be in sight. Communication is the key to excellence.

I will encourage this idea to take place. Necessity is the mother of invention. If we wait for when everything is perfect to kick it off, that day may never come. As a future possibility, it may be wise to choose a country where the technology is adequate to participate in such a project. Although I have close ties to the Philippines and to the faculty and students involved in the project, too many challenges existed to complete the project successfully. It is my belief that we could have eventually adapted to the cultural issues that were causing some issues, however the access to adequate technology and internet speed was a factor that could not be overcome, thus dooming the project.

REFERENCES

ADB (2009). Education and Skills: Strategies for Accelerated Development in Asia and the Pacific. Manila, ADB.Adiviso, B. 2010. Emerging Trends and Challenges of TVET in the Asia-Pacific Region. In Majumdar, S. (ed.).2011. Emerging Challenges and Trends in TVET in the Asia-Pacific Region. Rotterdam, Sense Publishers.

Anderson, J. "Digital Life in 2025," Pew Research Center, 11 March 2014, 6.

Arinto, P. (2016). "Issues and Challenges in Open and Distance e-Learning: Perspectives from the Philippines". International Review of Research in Open and Distributed Learning Volume 17, Number 2.

Benbasat, I., D. Gldstein, & M. Mead (1987). The Case Research Strategy in Studies of Information Systems. MIS Quarterly, 11(3), 369-386.

Barjaktarović, L., Stanković, JS, Gavrilović, JM. (2014). "The Role of Internet Technologies in Lecturing and Learning". Journal of Applied Sciences, 2014 Supplement, p397.

Darling-Hammond, L. et al. (2014). "Using Technology to Support At-Risk Students' Learning," Alliance for Excellent Education and Stanford Center for Opportunity Policy in Education, September 2014.

Ebaeguin, M. & Stephens, M. (2014). Cultural challenges in adapting lesion study to a Philippines setting. Mathematics Teacher Education and Development, 11 July, 9-25.

Feagin, J. R. (1991). The continuing significance of race: Anti-black discrimination in public places. American Sociological Review, 56(1), 101-116.

Globe (2016) Providing Internet to public education makes PH youth competitive with the rest of the world…March 12, 2016 retrieved on Oct. 15, 2022) http://www.globe.com.ph/press-room/providing-internet-to-public

Hofstede, G. (2001). Culture's consequences: comparing values, behaviours, institutions, and organizations across nations. Thousand Oaks, CA: Sage. Retrieved from https://www.hofstede-insights.com/country-comparison/the-philippines,the-usa/ on 10/18/2022.

Peng, M. (2018). Global 4. Boston, MA: Cengage.

Phil Ed (2020) Philippines - Educational System—an Overview - Percent, Schools, Students, and Private – retrieved on Nov. 2, 2020 http://education.stateuniversity.com/pages/1199/Philippines-EDUCATIONAL-SYSTEM-AN-OVERVIEW.html#ixzz4l7mwkXg4

Philippines Ministry of Education (2008). The Philippines Education for All 2015 – Implementation and Challenges. http://planipolis.iiep.unesco.org/upload/Philippines/Philippines_EFA_MDA.pdf (Accessed 12 October 2022).

Ricafort, N. (2020) THE PHILIPPINE HIGHER EDUCATION SYSTEM: CURRENT TRENDS AND DEVELOPMENTS By: Commissioner Nona S. Ricafort,Ph.D. Commission on Higher Education Philippines

Thigpen, TS. (2015). "Bridging the Connectivity Gap in Our Nation's Schools". Kennedy School Review. Vol. 15, p95-101. 7p.

UNESCO (2014)Education Systems in ASEAN+6 Countries: A Comparative Analysis of Selected Educational Issues Published in 2014 by the United Nations Educational, Scientific and Cultural Organization 7, place de Fontenoy, 75352 Paris 07 SP, France and UNESCO Bangkok Office http://unesdoc.unesco.org/images/0022/002267/226757E.pdf

Yin, R.K. (2003). Case Study Research, Design and Methods (Third Edition). Beverly Hills, CA: Sage Publications.

REVISITING THE SELF-SUSTAINABLE GROWTH RATE

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ABSTRACT

The concept of a "Self-Sustainable Rate of Growth", which has its origins in the seminal work of Miller and Modigliani, is widely taught to students of finance as an important tool for long-range planning and forecasting. Although the formulations vary somewhat, most introductory- and intermediate-level Financial Management texts provide a description of the concept, and a simple formula for its estimation.

However, these simple formulas are built upon underlying assumptions which are unlikely to hold in practice, and as a result, the estimates they produce are unreliable at best. In this paper, we provide a brief review of the internal- and sustainable-growth-rate formulations presented in popular financial management textbooks. We then demonstrate that the traditional formulas are not reliable when firms have material fixed costs in their cost structures (i.e., whenever the degree of operating leverage is not equal to 1). We provide observational evidence from a sample of US firms that this condition is the rule, rather than the exception.

We then address the problems associated with the use of these formulas by describing a more robust alternative procedure for estimation of the IGR and SGR which incorporates information about the subject firm's fixed- and variable costs. In addition, because the details of firms' cost structures are not publicly available, we explore the use of the Degree of Operating Leverage concept as a way of incorporating fixed costs into the IGR and SGR calculations.

INTRODUCTION

Although widely cited in popular textbooks, the concept of a self-sustainable growth rate has been, in our experience, something of a stumbling block for students in the intermediate Corporate Finance course. While the concept is intuitively appealing and simple to calculate, students who dive a bit deeper into the financial planning process often discover that the result of the textbook formula does not reconcile with the insights gained from a more detailed model. As we will demonstrate, the popular model contains implicit assumptions that are inconsistent with typical business practices, and consequently the resulting estimates are too imprecise to be of any practical use. The objectives of this paper are to (1) point out the shortcomings of the traditional model of the sustainable growth rate, (2) to demonstrate that these shortcomings lead to material errors when the model is applied to real-world firms, and (3) to propose more robust alternative formulas for the sustainable and internal growth rates, which incorporate information about the firm's structure of fixed and variable costs.

In the following sections, we will provide a brief review of relevant literature, a discussion of the intuition underlying the sustainable growth rate concept, and a demonstration of the popular model's failings. We then offer an alternative formulation for the self-sustainable growth rate which addresses at least one of these shortcomings. In addition, we explore the relationship between the sustainable growth rate and the degree of operating leverage (*DOL*), and provide evidence that the majority of firms do not satisfy the assumption of *DOL*=1 which is implicit in the popular models.

LITERATURE REVIEW

In their seminal paper on dividend policy, Miller and Modigliani (1961) were the first authors to propose that the rate of growth in a firm's market value could be expressed as a function of the rate of return on its projects and its dividend policy. Babcock (1970) was among the first to identify factors affecting a firm's maximum sustainable rate of growth. Higgins (1977) generalizes and extends the concept of a sustainable growth rate in sales, defining the concept in terms of profitability, asset efficiency, and leverage (in addition to dividend policy). Other authors (for example Bruner 1991, Ashta 2008, and Chen, Gupta, Lee, and Lee (2013)) have produced various refinements and extensions. Arora, Kumar, and Verma (2018) assess the suitability of two different methods of calculating the sustainable growth rate, and, using data from a sample of Indian manufacturing firms, identify the most important factors in determining the SGR.

However, the popular model continues to be standard fare in financial management textbooks; for example, Ross, Westerfield and Jordan (2021), Brigham and Houston (2019), Brealey, Myers and Marcus (2020), and Berk, DeMarzo, and Harford (2021). Of these, Ross, et al provide the most detailed treatment, providing a simple extension that allows the analyst to use contemporaneous observations of net income and shareholders' equity in calculating ROE. Scholars searching the internet for information on the concept will find that sources such as Investopedia (Murphy 2022) and the Corporate Finance Institute (corporatefinanceinstitute.com 2020) also define the concept in its most basic form.

Some of these sources advocate for the usefulness of the concept; for example, according to Murphy (2022), "The SGR is used by businesses to plan long-term growth, capital acquisitions, cash flow projections, and borrowing strategies." None, however, seem to acknowledge the limitations of the popular model. As this note will demonstrate, the popular formulations of SGR lack the precision needed in order to serve as valuable tools for financial planning.

INTUITION OF THE POPULAR MODEL

The concepts of internal growth rate (IGR) and sustainable growth rate (SGR) are different, but closely related. While SGR is more frequently cited, it seems (anecdotally at least) that students can more readily grasp the intuition behind IGR, which then logically extends to

SGR. Many textbooks (for example, Ross et al. (2021), and Berk et al. (2021)) present the concepts in this order, and we follow that example here.

Ross et al. (2021) define the internal growth rate as "the maximum growth rate that can be achieved with no external financing of any kind". That is, by what percentage can the firm's assets grow, using only capital from retained earnings? This is easily represented as the year-over-year increase in total assets divided by the beginning value:

$$IGR = \frac{ASSETS_1 - ASSETS_0}{ASSETS_0}$$

With b representing the retention ratio, NI representing Net Income, and allowing that assets can *only* increase via retained earnings, it is apparent that the increase in assets can be no greater than: $ASSETS_1 - ASSETS_0 = NI_1 \times b$

Substituting this expression into the numerator, we obtain the traditional formulation for IGR:

$$IGR = \frac{NI_1 \times b}{ASSETS_0}$$

A common shortcut is to note that Return on Assets (ROA) is defined as $NI/ASSETS$, and thereby restate this result as

$$IGR = ROA \times b$$

This is the definition for IGR presented in many popular sources, such as Berk et al (2021). This shortcut implies that it is possible to use the easily obtainable value for ROA in the IGR calculation. However, as noted by Ross et al (2021), this is not quite correct, since the original expression calls for the amount of net income earned during the observation period, and the level of assets observed at the *beginning* of that period. This would not be consistent with the usual definition of ROA, which compares net income to the end-of-period level of assets. Ross et al (2021) and others provide a definition of IGR which corrects for this timing mismatch:

$$IGR = \frac{ROA \times b}{1 - ROA \times b}$$

While both of these definitions are correct if appropriate inputs are used, this latter formulation allows the analyst to rely upon published sources for ROA, and is therefore preferable for most classroom purposes.

Again, the *internal* growth rate represents the maximum rate at which the firm's sales and assets can grow using *only* internally generated funds (retained earnings). That is, it assumes

that any increase in the level of assets can be funded strictly with a corresponding increase in shareholders' equity (retained earnings).

Obviously, the realized growth rate in sales is unknowable in advance, and is unlikely to match this theoretical optimum. If a profitable firm actually achieves positive sales growth (assuming less than 100% payout and keeping total liabilities fixed), then the balance sheet will necessarily be affected: total assets and shareholders' equity will increase by equal amounts, while liabilities remain unchanged. Consequently, if the growth rate in sales is positive but less than the IGR, the firm will experience a decrease in the debt ratio, potentially drifting away from its target capital structure over time.

Profitable sales growth *in excess* of the IGR would potentially be even more problematic; at this level of growth, retained earnings do not provide sufficient capital to fund the investment in additional assets needed. Without additional financing, the firm in this situation will quickly run into a cash crunch. In theory, at least, the IGR gives managers a tool for anticipating and preparing for such a situation.

Growing businesses are of course not precluded from raising additional capital to fund their growth. While the IGR represents the maximum rate at which the firm's assets can grow with *no* additional external capital, the *sustainable* growth rate concept relaxes that restriction. The question answered by the SGR is: how much growth can the firm support, assuming that it is able and willing to increase its use of debt financing, without increasing its debt ratio? That is, the implicit assumption of the SGR is that the firm is willing to take on new debt to fund its growth, but not beyond the point that it results in an increase in the debt ratio.

In terms of the balance sheet, this means that asset growth is allowed to be funded by equal percentage increases in both the shareholders' equity and total liability components, as opposed to shareholders' equity alone. The SGR, then is the rate at which *shareholders' equity* will increase year-over-year as a result of retained earnings:

$$SGR = \frac{EQUITY_1 - EQUITY_0}{EQUITY_0}$$

Given that the increase in equity comes from retained net income, we can make a substitution similar to the above:

$$SGR = \frac{NI_1 \times b}{EQUITY_0}$$

Following the same logic as the IGR derivation and using the usual definition of return on equity (ROE), we obtain the customary expression for the self-sustainable growth rate:

$$SGR = \frac{ROE \times b}{1 - ROE \times b}$$

USING PERCENT-OF-SALES FORECAST TO ESTIMATE GROWTH RATES

Having been exposed to the percent-of-sales method for constructing pro forma financial statement models, students can be asked to determine a firm's internal and sustainable rates of growth directly, using such a model. In the process of doing this, they may well encounter inconsistencies with the simple mathematical models described above. The example below demonstrates the frustrations that students may encounter when trying to reconcile the result of the IGR/SGR formulas with the insights derived from a slightly more detailed model.

The following example is based upon the "Hoffman Inc." example provided in chapter 4 of Ross, Westerfield and Jordan (2021). It begins with the presentation of a very rudimentary set of financial statements, illustrated here in Figure 1.

In this simple example, the IGR and SGR are easily calculated as 9.64% and 21.35%, according to the formulas given above. If we apply the customary percent-of-sales approach to produce a set of pro forma statements for the upcoming year, it's easy to confirm the validity of these numbers. For the purposes of this example, we will assume that the tax rate remains at 21%, the payout ratio remains at 33.3%, and all costs and assets maintain their current size relative to sales. The level of debt is assumed to remain fixed. The resulting pro formas are illustrated in Figure 2.

Figure 1

Hoffman Company (ORIGINAL)

Income Statement			Balance Sheet	
	20X0		Assets	20X0
Sales	500		Current	200
Costs	416.5		Fixed	300
Taxable Income	83.5		Total	500
Taxes @ 21%	17.5			
Net Income	66.0			
			Liabs & Equity	
Dividends	22.0		Debt	250
Addition to RE	44.0		Equity	250
			Total	500
			ROA	**13.19%**
			ROE	**26.39%**
		Internal Growth Rate		**9.64%**
		Sustainable Growth Rate		**21.35%**

Figure 2

Hoffman Company (9.64% Growth)

Income Statement			
	20X0	20X0%	20X1
Sales	500	100%	548.2
Costs	416.5	83.3%	456.7
Taxable Income	83.5		91.6
Taxes	17.5	calc @ 21%	19.2
Net Income	66.0		72.3
Dividends	22.0		24.1
Addition to RE	44.0		48.2

Balance Sheet			
Assets	20X0	20X0%	20X1
Current	200	40%	219.288
Fixed	300	60%	328.932
Total	500		548.22
Liabs & Equity			
Debt	250	fixed	250
Equity	250	calc	298.2
Total	500		548.2
External Financing Needed			**0.0**

Here, sales are assumed to grow at a rate of 9.64% year-over-year (the calculated IGR), and, as expected, the firm will experience neither a capital surplus nor deficit in this scenario; the amount of external financing needed is $0. Once students have built a working spreadsheet model similar to Figure 2, they can experiment by changing the growth rate assumption to see the effect of growth on the firm's financial requirements. They should find that growth rates higher than the IGR result in a positive EFN (a capital deficit), and growth rates lower than the IGR yield a negative EFN (a capital surplus). Another worthwhile exercise is to invite students to use the Goal Seek feature of Microsoft Excel to verify the results of the IGR formula.

If we modify the spreadsheet a bit such that the debt-to-equity ratio remains fixed (debt is allowed to grow at the same rate as sales), students can see that the additional capital supports higher levels of growth. Figure 3 illustrates such a model using an assumed growth rate of 21.35% (the calculated SGR). When debt is allowed to increase along with sales, we again find that the firm can support growth at this rate without either a deficit or surplus of capital (EFN=0). As before, students can experiment with higher and lower growth rates, or verify the accuracy of the SGR formula using Goal Seek.

Figure 3

Hoffman Company (21.35% Growth, constant D/E)

Income Statement			
	20X0	20X0%	20X1
Sales	500	100%	606.7
Costs	416.5	83.3%	505.4
Taxable Income	83.5		101.3
Taxes @ 21%	17.5	calc @ 21%	21.3
Net Income	66.0		80.0
Dividends	22.0		26.7
Addition to RE	44.0		53.4

Balance Sheet			
Assets	20X0	20X0%	20X1
Current	200	40%	242.69
Fixed	300	60%	364.04
Total	500		606.73
Liabs & Equity			
Debt	250	100%D/E	303.36
Equity	250	calc	303.36
Total	500		606.73
External Financing Needed			0.00

PROBLEMS WITH THE POPULAR MODEL

The preceding examples reconcile correctly with the popular models of IGR and SGR respectively, only because they are built upon the assumption that all costs, all asset accounts, and all current liabilities will increase at the same rate as top line sales. Only if this rather strong assumption is upheld can we say that the maximum rate of sales growth that Hoffman can support without external financing is 9.64%. Therein lies the problem with the popular models; such an assumption is unlikely to comport with reality, or with typical managerial practice. For nearly every business, some costs are variable and some are fixed, so total operating costs will not scale in direct proportion to revenue. Similarly, working capital and fixed asset requirements are unlikely to grow in that manner as well, given the "lumpiness" of capital expenditures, and the potential availability of excess capacity. Even the most rudimentary effort to develop a set of pro forma financial statements should account for these considerations.

Furthermore, even modest deviations from the equal-growth assumption result in economically significant changes to the "true" IGR and SGR, throwing the validity of the popular model into doubt. Suppose, for example, that we revise the Hoffman forecast again, accounting for the assumption that 40% of the firm's total costs are fixed; that is, the ratio of fixed costs to total costs is 0.40. The resulting forecast is presented in Figure 4. Note that this change would not affect the value of either IGR or SGR calculated according to the popular model; they would still be 9.64% and 21.35% respectively. However, in Figure 4, we find (by adjusting the assumed growth rate) that with no increase in debt, the firm can now sustain growth of approximately 17.88%. That is, Hoffman's true IGR is 17.88%. Similarly, the firm's true SGR of 118.09% is obtained in Figure 5 by assuming that debt is allowed to grow in order to

maintain a constant debt-to-equity ratio, and then finding the growth rate at which no *additional* external financing is needed (EFN = 0).

Figure 4

Hoffman Company (40% FC/TC, 17.88% Growth)

Income Statement				Balance Sheet			
	20X0	20X0%	20X1		20X0	20X0%	20X1
Sales	500	100%	589.38	**Assets**			
Fixed Costs	160	fixed	160.00	Current	200	40%	235.75
Variable Costs	240	48%	282.90	Fixed	300	60%	353.63
Total Costs	400		442.90	Total	500		589.38
Taxable Income	100		146.48				
Taxes	21	calc @ 21%	30.76	**Liabs & Equity**			
Net Income	79		115.72	Debt	250	fixed	250.00
				Equity	250	calc	339.38
Dividends	26.33		26.33	Total	500		589.38
Addition to RE	52.67		89.38				
				External Financing Needed			**0.0**

Figure 5

Hoffman Company (40% FC/TC, 100% D/E, 118.09% Growth)

Income Statement				Balance Sheet			
	20X0	20X0%	20X1		20X0	20X0%	20X1
Sales	500	100%	1090.45	**Assets**			
Fixed Costs	160	fixed	160.00	Current	200	40%	436.18
Variable Costs	240	48%	523.42	Fixed	300	60%	654.27
Total Costs	400		683.42	Total	500		1090.45
Taxable Income	100		407.03				
Taxes	21	calc @ 21%	85.48	**Liabs & Equity**			
Net Income	79		321.56	Debt	250	100% D/E	545.22
				Equity	250	calc	545.22
Dividends	26.33		26.33	Total	500		1090.45
Addition to RE	52.67		295.22				
				External Financing Needed			**0.0**

To summarize: the popular models produced estimates of IGR and SGR of 9.64% and 21.35% respectively. We have shown, though, that under the simple, realistic assumption that 40% of costs are fixed, the *actual* growth limits are 17.88% and 118.09%. While these results (particularly SGR) are a bit extreme, it is clear that the presence of fixed costs in the firm's cost structure has a non-trivial effect on its ability to sustain growth. This observation serves as an illustration of the concept of operating leverage, which we will address below.

Alternative Models of IGR and SGR

It is possible to derive relatively compact formulas for IGR and SGR which incorporate fixed costs and variable costs, presented below (derivation in appendix):

$$IGR = \left[\frac{A - FC(1-T) - DIV}{A - (S - VC)(1-T)}\right] - 1 \quad (1)$$

$$SGR = \left[\frac{EQ - FC(1-T) - DIV}{EQ - (S - VC)(1-T)}\right] - 1 \quad (2)$$

Here, the reported amounts of fixed costs and variable costs are denoted as *FC* and *VC* respectively. Note that interest expense, depreciation, and any other noncash charges would be included as part of *FC*. The most recent observations of total assets, shareholders' equity, and sales are represented by *A, EQ,* and *S* respectively. *DIV* denotes the amount of dividends to be paid, and *T* the tax rate. While these last two inputs are forward-looking, near-term estimates are generally reliable when it comes to dividend policy and the corporate income tax rate. Substituting the relevant values from the Hoffman example into the preceding equations, we obtain the expected results:

$$IGR = \left[\frac{500 - 160(1-0.21) - 26.33}{500 - (500 - 240)(1-0.21)}\right] - 1 = 0.1788 = 17.88\%$$

$$SGR = \left[\frac{250 - 160(1-0.21) - 26.33}{250 - (500 - 240)(1-0.21)}\right] - 1 = 1.1809 = 118.09\%$$

The above formulations for a firm's internal and sustainable growth rates are obviously a bit more involved than the popular models; however, they provide a relatively quick, back-of-the-envelope method for managers to assess their firm's ability to accommodate sales growth, without resorting to a full-fledged spreadsheet model.

By recognizing that $S - FC - VC =$ earnings before interest and taxes (EBIT), it is possible to reformulate the numerator of the SGR expression as follows:

$$SGR = \frac{EBIT_0(1-T) - DIV_1}{EQ_0 - (S - VC)(1-T)} \quad (3)$$

It should be noted that firms do not generally release detailed information about their cost structures to the public, so precise values for *FC* and *VC* may not be available to external analysts. The IGR and SGR concepts themselves are primarily useful in the context of internal planning, in which this limitation would not be an issue. If external analysts seek to estimate IGR or SGR, industry averages could potentially be used, and would be preferable to the assumption of 100% variable costs which is implicit in the popular model. In the context of a forecasting project or discussion of the concept of sustainable growth, the important takeaway for students is to recognize the limitations of the popular models of IGR and SGR.

OPERATING LEVERAGE AND THE SUSTAINABLE GROWTH RATE

As we have demonstrated, the popular models are correct only when fixed costs and total costs are equal; therefore, if the ratio of fixed costs to total costs is not generally equal to (or very close to) one, the popular models will not be accurate. To assess the real-world significance of this problem, it would be natural to examine the ratio of fixed costs to total costs for a sample of actual firms. However, public firms in the United States do not generally disclose details of their cost structures, so a direct measurement of this ratio is impractical. We can, though, evaluate the relative extent of firms' fixed costs indirectly, using the concept of operating leverage.

According to Block, et al (2022), "operating leverage reflects the extent to which fixed assets and associated fixed costs are utilized in the business." Operating leverage is measured by the Degree of Operating Leverage (*DOL*), defined by Gup (1986) as "the percentage change in EBIT that will result from a 1 percent change in sales revenue". The concept is frequently operationalized as:

$$DOL = \frac{S - VC}{S - VC - FC}$$

In this formula, *DOL* is defined in terms of sales, variable costs, and fixed costs. The only difference between the numerator and denominator of this expression is the amount of fixed costs, *FC*. The assumption that all costs are variable (implicit in the popular model of SGR) is equivalent to assuming that *FC = 0*, in which case *DOL* would be equal to 1. Consequently, for any firm for which *DOL* is appreciably different from 1, the traditional formulation of SGR will be inappropriate. For example, for the fictitious Hoffman Company described above, the initial value of *DOL* would be:

$$DOL = \frac{500 - 240}{500 - 240 - 160} = 2.60$$

As demonstrated above, when Hoffman is assumed to have fixed costs amounting to 40% of total costs (equating to *DOL* of 2.60), the popular models of IGR and SGR fail to produce useful results. But, is this degree of operating leverage typical of real-world firms? Again, without access to firm-level data for the values of FC and VC, we cannot use this formulation for cross-sectional analysis. Techniques for estimation of *DOL* have been the subject of extensive research (Dugan and Shriver 1989, for example). However, for the present purpose it is possible to use a more fundamental definition of *DOL* (Brealey, et al 2020):

$$DOL = \frac{percentage\ change\ in\ profits}{percentage\ change\ in\ sales}$$

Because this formulation relies only on publicly available income statement data, it is possible to produce *ex-post* estimates of *DOL* for publicly traded firms. In the following section, we assess the real-world significance of the issues highlighted in this study, using estimates of *DOL* calculated in this way.

THE DEGREE OF OPERATING LEVERAGE IN PRACTICE

The Bloomberg Information System provides pre-computed estimates of the *DOL* for public firms according to the preceding definition, using EBIT as the measure of profit. It should be noted that Bloomberg's procedure modifies the simple calculation above in two ways: first, when the numerator and denominator of this fraction are of opposing signs (for example, EBIT decreases in spite of an increase in sales), the observation is discarded. When Sales and EBIT move in opposing directions, it is taken as an indication of a period of structural change which would render the interpretation of *DOL* meaningless. Second, when both numerator and denominator are negative, the observation of *DOL* is encoded as negative. In these cases, the sign serves only as an indicator of a decline in both sales and profits, not as a signal of an inverse relationship between the two (Bloomberg Finance L.P, n.d.). Consequently, we use the absolute value of Bloomberg's reported *DOL* in the following analysis.

We chose to use the firms of the Standard and Poor's Midcap 400 as the basis for this analysis. This is a set of 400 publicly traded U.S. corporations with market capitalizations ranging from approximately $4.6 billion to $12.7 billion as of May 2023. This index was chosen because the firms in this size range "have successfully navigated the challenges specific to small companies", while at the same time are "not so large that continued growth is unattainable" (S&P Dow Jones Indices 2023). In short, these are firms for which growth is a concern, but not the only concern.

We obtain from Bloomberg the pre-computed estimates of DOL for the firms of the Midcap 400 index as of the end of calendar years 2018 through 2022. This resulted in 1085 data points. As mentioned above, only the unsigned absolute values are used in the analysis.

The issue at hand is whether or not the implicit assumption of DOL = 1 is generally valid, in which case the traditional formulations of IGR and SGR would produce reliable results. Within the full sample, the mean DOL was 11.07, with a standard deviation of 46.56. The sample median was 2.45; notably, not far from the value of 2.60 exhibited by the fictitious "Hoffman" example above. Reported values for DOL ranged from 0.0076 to approximately 763. Summary statistics are provided in Table 1, and a histogram illustrating the distribution of the sample is provided as Figure 6. The 95% confidence interval for the mean DOL spans the range from approximately 8.3 to 13.8. That is, we can say with 95% certainty that the mean DOL of midsize U.S. firms falls within this range; nowhere near the critical value of 1.0.

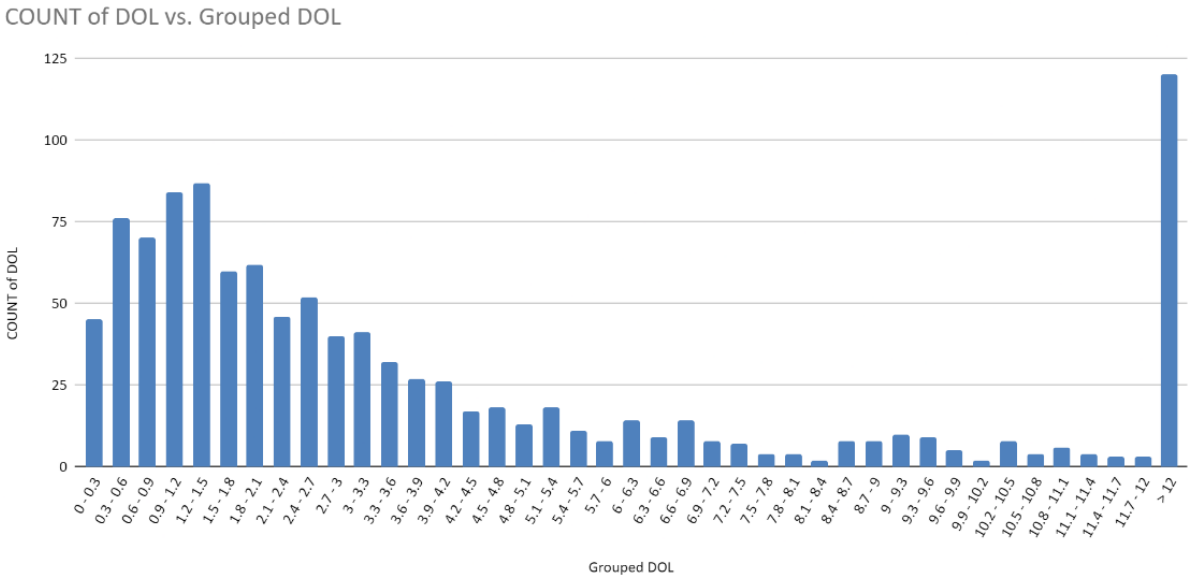
To minimize the effect of extreme (outlier) values in the sample, we repeated the calculations after eliminating the 25 largest and 25 smallest observations. This produced a subsample of 1035 values, having a mean of 5.46 and a standard deviation of 9.2. Again, summary statistics are presented in the rightmost column of Table 1. The resulting 95% confidence interval based on this sample was [4.9, 6.0]; again, the critical value 1.0 does not fall

within this range. Based on this, we can confidently assert that it is not typical for firms in this category to exhibit a degree of operating leverage that is close to 1.0, and therefore the popular models for IGR and SGR should be used cautiously in practice, if at all. Revisiting the analysis using the firms of the S&P 500 index did not materially alter these findings. Also, while it may be possible to use various approaches to develop estimates for DOL from financial statement data (Dugan and Shriver 1989), it seems unlikely (based on the results of the cited research) that such estimates would be typically close enough to 1.0 to render the traditional models of SGR and IGR viable.

Table 1

	MidCap 400 - DOL	**MidCap 400 - DOL (excluding outliers)**
Mean	11.07	5.46
Median	2.45	2.45
Standard Deviation	46.56	9.20
Minimum	0.0076	0.1653
Maximum	762.88	85.36
Count	1085	1035

Figure 6



USING THE DEGREE OF OPERATING LEVERAGE TO ESTIMATE THE SUSTAINABLE GROWTH RATE

If an external analyst lacks actual values for *VC* and *FC*, but has a reasonable estimate of *DOL* (from either direct observation as above or from another estimation approach), our improved models for IGR and SGR can be rewritten to eliminate the unavailable data items. Let *TC* represent total costs, i.e. *TC* is the sum of *FC* and *VC*. Then,

$$VC = S - DOL(S - TC)$$

and

$$FC = TC - VC = (TC - S)(1 - DOL)$$

Substituting these expressions into the previous formulas for IGR and SGR, we get:

$$\boldsymbol{IGR} = \left[\frac{A-(TC-S)(1-DOL)(1-T)-DIV}{A-(DOL(TC-S))(1-T)}\right] - \mathbf{1} \quad (4)$$

and:

$$\boldsymbol{SGR} = \left[\frac{EQ-(TC-S)(1-DOL)(1-T)-DIV}{EQ-(DOL(TC-S))(1-T)}\right] - \mathbf{1} \quad (5)$$

While these expressions are somewhat less elegant than equations (1) and (2), they have the advantage of not relying upon potentially unavailable values for *FC* and *VC* (the value for total operating cost *TC* is likely to be more readily available). Instead, the growth limits are calculated on the basis of *DOL*, which could be estimated by direct observation of the relationship between the changes in profits and sales over time (as in the analysis above), or one of the other methods documented in the literature.

CONCLUSION

The self-sustainable growth rate concept is an important one for students and practitioners in the field of financial management. In the classroom, it helps to illustrate the fact that for nearly all firms, rapid growth in revenue is a double-edged sword; while sales growth normally translates to higher earnings, it also brings the need for additional (costly) assets. The traditional formulations of IGR and SGR can be useful to help students understand the fundamental connections between revenue growth and the firm's capital investment, debt, and dividend policies.

However, as has been shown above, the traditional models depend critically upon the assumption that all costs and all asset requirements grow at the same rate as revenue, which is unlikely to be the case for most firms. And we show that realistic deviations from this assumption can cause the calculated IGR and SGR to vary widely from their "true" values, to the point that the traditional models are of questionable utility for any practical purpose.

In this paper we present revised formulations for IGR and SGR which take into account the firm's structure of fixed and variable costs (and equivalently, its degree of operating leverage). While these formulations are a bit less elegant than the popular models, they have the advantage of being based upon far more realistic assumptions, and thereby producing more reliable results. These models are useful in at least two ways. First, in corporate finance courses, they can help to resolve students' confusion regarding the limitations of the popular model, and to understand the factors that limit firms' ability to accommodate growth. Second, analysts and managers may find the revised models useful for anticipating and planning for capital requirements in future periods.

In the practice of financial planning, no (practical) formula can take the place of a detailed, integrated financial statement model for the purpose of developing expectations and plans for future periods. It is hoped, though, that this note will serve as a caution for instructors and students of corporate finance to be aware of the limitations of the popular IGR/SGR models, and to consider the many other factors that have an influence on a firm's self-sustainable rate of sales growth.

REFERENCES

Arora, L., Kumar, S., & Verma, P. (2018). The anatomy of sustainable growth rate of Indian manufacturing firms. *Global Business Review*, *19*(4), 1050–1071.

Ashta, A. (2008). Sustainable growth rates: Refining a measure. *Strategic Change*, *17*, 207–214. https://doi.org/10.1002/jsc.827

Babcock, G. C. (1970). The concept of sustainable growth. *Financial Analysts Journal*, *26*(3), 108–114.

Berk, J. B., DeMarzo, P. M., & Harford, J. V. T. (2021). *Fundamentals of corporate finance* (Fifth edition). Pearson Education, Inc.

Block, S. B., Hirt, G. A., & Danielsen, B. R. (2022). *Foundations of financial management* (Eighteenth Edition). McGraw Hill LLC.

Bloomberg Finance L.P. (n.d.). [S&P Midcap 400 historical data] [Data set]. Retrieved March 20, 2023 from SUNY Plattsburgh Bloomberg terminal.

Brealey, R. A., Myers, S. C., & Marcus, A. J. (2020). *Fundamentals of corporate finance* (Tenth edition, international student edition). McGraw-Hill Education.

Brigham, E. F., & Houston, J. F. (2019). *Fundamentals of financial management* (Fifteenth edition). Cengage.

Bruner, R. F. (2009). Critical Look at the Self-Sustainable Rate of Growth Concept and Formulas. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1418306

Dugan, M.T, and Shriver, K.A. (1989). The effects of Estimation Period, Industry, and Proxy on the Calculation of the Degree of Operating Leverage. *The Financial Review, 24*(1), 109-122.

Gup, B.E. (1986). *Principles of Financial Management* (Second edition). John Wiley & Sons.

Hayes, A. (2022, April 5). *Understanding the degree of operating leverage*. Investopedia. https://www.investopedia.com/terms/d/degreeofoperatingleverage.asp

Higgins, R. C. (1977). How Much Growth Can a Firm Afford? *Financial Management*, *6*(3), 7. https://doi.org/10.2307/3665251

Miller, M. H., & Modigliani, F. (1961). Dividend Policy, Growth, and the Valuation of Shares. *The Journal of Business*, *34*(4), 411. https://doi.org/10.1086/294442

Murphy, C. (2022, April 19). *Understanding the Sustainable Growth Rate (SGR)*. https://www.investopedia.com/terms/s/sustainablegrowthrate.asp

Ross, S. A., Westerfield, R., & Jordan, B. D. (2021). *Fundamentals of corporate finance* (Thirteenth Edition). McGraw Hill LLC.

Sustainable Growth Rate. (2020, February 12). Corporate Finance Institute. https://corporatefinanceinstitute.com/resources/knowledge/finance/sustainable-growth-rate/

S&P Midcap 400 Fact Sheet. (2023). S&P Dow Jones Indices. https://www.spglobal.com/spdji/en/indices/equity/sp-400/

APPENDIX

We can define external financing needed (EFN_1) as follows:

$$EFN_1 = Assets_1 - Debt_1 - EQ_1$$

We make the assumption that all assets grow at the same rate as sales, g:

$$Assets_1 = Assets_0(1+g)$$

Shareholders' equity at the end of period, EQ_1, can be described in terms of retained earnings RE:

$EQ_1 = EQ_0 + \Delta RE$, where $\Delta RE = [(S - VC)(1+g) - FC](1-T) - DIV_1$.

Therefore,

$$EQ_1 = EQ_0 + [(S - VC)(1+g) - FC](1-T) - DIV_1$$

If we substitute this expression into the previous formula for EFN_1, we obtain

$$EFN_1 = Assets_0(1+g) - Debt_1 - EQ_0 - [(S - VC)(1+g) - FC](1-T) + DIV_1$$

Now, we want to find the growth rate, g, for which $EFN_1 = 0$ (according to the definition of *IGR*). In order to do this, we have to solve for g the following linear equation:

$$0 = Assets_0(1+g) - Debt_1 - EQ_0 - (S - VC)(1+g)(1-T) + FC(1-T) + DIV_1$$

Gathering the terms with g on the left side, we will have the following:

$$(S - VC)(1-T)(1+g) - Assets_0(1+g) = -Debt_1 - EQ_0 + FC(1-T) + DIV_1$$

Multiply both sides by (−1):

$$Assets_0(1+g) - (S - VC)(1-T)(1+g) = Debt_1 + EQ_0 - FC(1-T) - DIV_1$$

Factor out $(1+g)$ on the left:

$$[Assets_0 - (S - VC)(1-T)](1+g) = Debt_1 + EQ_0 - FC(1-T) - DIV_1$$

Now, solve for $(1+g)$:

$$(1+g) = \frac{Debt_1 + EQ_0 - FC(1-T) - DIV_1}{Assets_0 - (S - VC)(1-T)}$$

Now, we can use the fundamental balance sheet identity $Debt_0 + EQ_0 = Assets_0$

Since for calculating *IGR* we are using the assumption that the total liabilities are fixed, that is, the company does not acquire any new debt, then $Debt_0 = Debt_1$, therefore we can rewrite the previous equation as $Debt_1 + EQ_0 = Assets_0$. Using this last expression, we can simplify the above formula for $(1+g)$ as follows:

$$1 + g = \frac{Assets_0 - FC(1-T) - DIV_1}{Assets_0 - (S - VC)(1-T)},$$

which results in the following formula for *IGR*:

$$IGR = g = \frac{Assets_0 - FC(1-T) - DIV_1}{Assets_0 - (S - VC)(1-T)} - 1$$

To derive the formula for SGR, we go back to the equation

$0 = Assets_0(1+g) - Debt_1 - EQ_0 - (S - VC)(1+g)(1-T) + FC(1-T) + DIV_1$,

and make the assumption that debt, just like assets, grows at the same rate as sales, g:

$Debt_1 = Debt_0(1+g)$

Substituting this expression into the equation, we get the following:

$0 = Assets_0(1+g) - Debt_0(1+g) - EQ_0 - (S - VC)(1+g)(1-T) + FC(1-T) + DIV_1$

which can be rewritten as

$0 = (Assets_0 - Debt_0)(1+g) - EQ_0 - (S - VC)(1+g)(1-T) + FC(1-T) + DIV_1$

$= EQ_0(1+g) - EQ_0 - (S - VC)(1+g)(1-T) + FC(1-T) + DIV_1$

If we solve this equation for g, the resulting formula is the expression for calculating *SGR*:

$$SGR = g = \frac{EQ_0 - FC(1-T) - DIV_1}{EQ_0 - (S - VC)(1-T)} - 1$$

Note: we can further simplify the above equation as

$0 = EQ_0(g) - (S - VC)(1+g)(1-T) + FC(1-T) + DIV_1$

Gathering terms with g on the right and factoring g out, we get:

$(S - VC)(1-T) - FC(1-T) - DIV_1 = [EQ_0 - (S - VC)(1-T)](g)$,

or, equivalently,

$(S - VC - FC)(1-T) - DIV_1 = [EQ_0 - (S - VC)(1-T)](g)$

The expression $(S - VC - FC)$ defines earnings before interest and taxes (EBIT), so an alternative formula for *SGR* is:

$$SGR = g = \frac{EBIT_0(1-T) - DIV_1}{EQ_0 - (S - VC)(1-T)}$$

A NOTE ON THE EFFICACY OF THE CANVAS LMS INDICATORS FOR STUDENT SUCCESS: EVIDENCE FROM ONLINE FINANCE AND ACCOUNTING COURSES

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ABSTRACT

This study utilized two quantitatively linked variables, "Total Activity" and "Page Views" on the Canvas Learning Management System (LMS), to assess their impact on student success as measured by average exam scores in online courses. "Total Activity" and "Page Views" were identified as the independent variables and average exam scores as the dependent variable. The results indicated that while "Total Activity" did not significantly affect average exam scores, "Page Views" had a statistically significant impact on average exam scores for most finance courses but not accounting courses. Additionally, the study found that the impact of these variables may be underestimated for accounting courses that utilize multiple educational LMS platforms. The study contributes to understanding how student engagement in online courses can affect academic performance.

Keywords: *online teaching, Total Activity, Page Views, Canvas, time spent studying, average exam scores, academic performance, student success.*

JEL Classification: A22, G00, G000

INTRODUCTION

While there is ample published research on the determinants of a student's success from face-to-face courses, there are limited peer-reviewed research ~~papers~~ for online courses. Significantly, the prevalence of online teaching worldwide during the COVID-19 pandemic introduces more questions about what determines student success. Does it help if students spend more time online within a Learning Management System (LMS)? Do students benefit when they view more pages from within LMS? This study analyzes whether the two of the Canvas LMS indicators, Total Activity and Page Views, help assess student success which is approximated by the average exam scores.

The Canvas learning management system records "Total Activity" for each student as an approximation for study time. According to Canvas LMS (2022), the Canvas instructor guide,

> ***"Total Activity [7]****—allows you to see how long students interact within a course and counts page navigation only. Total activity time is displayed in hours:minutes:seconds. If a user has not yet reached an hour of activity, total activity time is displayed as minutes:seconds. Total Activity records any time spent viewing course content that exceeds two minutes. If the time between a new activity and the last completed activity is under ten minutes, all time between these two events will also be included. Total Activity does not include group activity or page views for videos that do not include intermediate page requests."*

Also, Canvas LMS (2022), Instructure Community, explains Page Views as:

> ***"Page Views****: Because the page view data is based on requests to the server, the numbers for page views may be greater than what we traditionally think of as a page view. As a result, page view data should be used as a good approximation to student activity and not an absolute metric. This data is most valuable when seeking to understand if activity did occur, and as a means of comparison across students within a course or when viewing trends week to week."*

This paper uses Total Activity measured in study hours and Page Views as the data requested from the server by the students to predict student success (the semester-end average exam scores). Currently, only one research paper has been published analyzing the effectiveness of the Total Activity measure of Canvas. Santos et al. (2021) find that Total Activity in study hours is statistically significant in explaining student success. However, there are conflicting findings from other researchers exploring the role of study time in predicting student success. For example, Calafiore & Damianov (2011) use the online tracking feature in Blackboard to analyze the impact of time spent online on their final grades and find that time spent and GPA are statistically significant determinants of the final grade.

On the other hand, Noonis and Hudson (2006) find that study time does not correlate with academic performance. Also, Noonis and Hudson (2010) investigate the relationship between study habits on college student performance and find mixed results. According to their research, the study habits, such as "access to a good set of notes" and the ability to concentrate and pay attention in class," demonstrated significant and positive relationships with the students' GPAs. However, the study habit of "scheduling regular review periods" did not show a significant relationship with GPA. Further, time at work showed significant negative correlations with the students' GPAs. Additionally, Dickinson & O'Connell (1990) find a weak correlation between the test scores and total study time. However, they found a stronger connection between test scores and time spent organizing the course content. Further, Gleason and Walstad (1988) do not support the hypothesis that student achievement is a function of study time.

Furthermore, the research on online education about student success is diverse, suggesting factors other than study time. For example, Bettinger et al. (2017) find that taking a course online reduces student success and overall progress in college by lowering grades taken online and in their future studies by making students less likely to remain enrolled at the university. Bettinger et al. compare the same course sections offered both online and in-person. In their research, the online and in-person sections use the same syllabus, the same textbook, assignments, quizzes, tests, and grading rubrics. While the in-person sections use face-to-face meetings with lecturing, class discussion, and group projects through online discussion boards,

the online sections use the professor's standardized videos in an asynchronous mode. According to Bettinger et al., "the university's online classes attempt to replicate its traditional in-person classes, except that student-student and student-professor interactions are virtual and asynchronous." Bettinger et al. data cover more than 230,000 students enrolled in 168,000 sections of more than 750 different courses from a large for-profit university with an undergraduate enrollment of more than 100,000 students at the university's 102 physical campuses. Also, Küllü and Murtagh (2019) find that early-semester TVM topic reviews using online courses improve student performance in the core finance course, especially for students with lower GPAs. Crain and Ragan (2017) examine the performance of 124 students from the online and 291 students from the face-to-face classes and find that online students perform worse than face-to-face students. Still, this difference in performance disappears when the students' completion of preparatory homework assignments variable is included. Fendler et al. (2011) examine student performance in the online and in-class instruction settings at different learning levels as classified in Bloom's taxonomy and conclude that learning outcomes differ in these two settings. They argue that the inconsistent findings about the efficacy of online versus in-person learning are due to different learning levels in the intellectual development of students. Morgan (2015) also examines online accounting programs to determine the impact of the delivery method on CPA exam passing rates and finds that online programs result in much lower pass rates.

RESEARCH METHOD AND ANALYSIS

This study uses a quantitative research method with historical data. The actual student semester-end average exam scores approximate for student success for the eight online undergraduate finance courses and six undergraduate online accounting courses from the 2019-2021 period. Canvas's Total Activity measures study time in hours, and the Page Views count the students' requests to the server.

Below, Table 1 lists the finance and accounting courses, the number of enrolled students, and indicates in which semester the courses were offered.

Table 1: Online Business Courses and the Number of Students Enrolled*

FINANCE COURSES**	**COURSE NAME**	**# OF STUDENTS**
BUS 370 FALL 2021	Introduction to Managerial Finance	75
BUS 370 SPRING 2021	Introduction to Managerial Finance	50
BUS 370 SUMMER 2019	Introduction to Managerial Finance	31
BUS 472 FALL 2021	Investments	56
BUS 473 SPRING 2021	International Finance	38
BUS 474 FALL 2021	Computer Applications in Finance	52
BUS 474 SPRING 2021	Computer Applications in Finance	39
BUS 477 WINTER 2022	Real Estate Finance	28
ACCOUNTING COURSES***	**COURSE NAME**	**# OF STUDENTS**
BUS 230A-001 FALL 2021	Financial Accounting	39
BUS 230A-001 SPRING 2021	Financial Accounting	27
BUS 230A-002 FALL 2021	Financial Accounting	37
BUS 230A-002 SPRING 2021	Financial Accounting	40
BUS 430 FALL 2021	Advanced Accounting	19
BUS 430 SPRING 2021	Advanced Accounting	25
TOTAL		**556**

*While the Summer (SU) online courses have four weeks of instruction, the Fall (FA) and Spring (SP) courses have a little less than 4-months of instruction.

**The finance courses have study material (practice and graded quizzes, exams and test bank, and other supplementary resources such as PowerPoint slides and Answers to Chapter-End questions embedded into the Canvas LMS system except for the course e-textbook.

***The accounting courses use McGraw-Hill's Connect, which includes all study material (practice and graded quizzes, exams, test bank, and other supplementary resources such as PowerPoint slides, Answers to Chapter-End questions) available through a link outside the Canvas LMS.

Table 2 provides the regression (OLS) results from an equation where Total Activity and Page Views are two explanatory variables for the semester-end average exam scores. Total Activity approximating study time does not have explanatory power for the eight finance and six accounting online undergraduate courses. However, Total Activity has statistical significance for one course but with a negative sign making it invalid for the analysis. On the other hand, the Page Views indicator successfully explains the dependent variable (the average semester-end exam score) in 6 out of 8 online finance courses.

According to Canvas LMS, Page Views captures "is based on requests to the server. The numbers for page views may be greater than what we traditionally think of as a page view. As a result, page view data should be used as a good approximation to student activity and not an absolute metric." Therefore, Page Views may capture student activity better when the students actively participate by clicking on digital pages on Canvas.

Page Views count the number of pages the student has visited; unfortunately, Page Views cannot provide a complete picture of a student's activity or engagement with the course material. Simply visiting a page does not necessarily mean that the student is actively participating in the course or learning the material. Therefore, to get a more accurate sense of a student's activity and

engagement, it would be helpful to consider other measures besides page views, such as the number of submissions made for assignments, participation in discussions, and assessment performance. These additional measures can give a complete picture of a student's activity and engagement with the course material.

In contrast, Total Activity is a passive and imperfect measurement of student activity by gauging how long a student stays on Canvas. While the students are on Canvas and the time for Total Activity is counting, they can use smartphones to read news, send text messages, or talk to their friends. Therefore, any measurement for study time for online courses is likely to face the same to define whether time spent online translated into learning.

Table 2: Regression between the Semester-End Average Exam Scores and Total Activity

ONLINE FINANCE COURSES	TOTAL ACTIVITY	t-STATS	PAGE VIEWS	t-STATS	# OF STUDENTS
BUS 370 FA21	-0.1037	(-0.2937)	0.0011*	(2.1386)	75
BUS 370 SP21	0.1378	(0.4068)	0.0006	(0.0005)	50
BUS 370 SU19	-0.5143	(-0.2604)	0.0005	(0.5009)	31
BUS 472 FA21	0.7242	(1.5298)	0.0025**	(3.8604)	56
BUS 473 SP21	0.0928	(0.3205)	0.0016*	(2.1079)	38
BUS 474 FA21	0.6919	(1.1379)	0.0011**	(3.5514)	52
BUS 474 SP21	-0.1654	(-0.7938)	0.0013*	(2.0867)	39
BUS 477 WI22	1.3068	(1.5815)	0.0010	(1.3735)	28
ONLINE ACCOUNTING COURSES	**TOTAL ACTIVITY**	**t-STATS**	**PAGE VIEWS**	**t-STATS**	**# OF STUDENTS**
BUS 230A-001 FA21	-1.3799	(-0.4187)	0.0080	(1.2753)	39
BUS 230A-001 SP21	4.2504	(1.6436)	0.0201	(1.9414)	27
BUS 230A-002 FA21	4.0051	(1.0812)	-0.0281*	(-2.4714)	37
BUS 230A-002 SP21	2.9818	(0.7198)	0.0098	(1.4455)	40
BUS 430 FA21	-3.3646	(-0.4940)	0.0161	(1.2208)	19
BUS 430 SP21	0.5573	(1.0234)	0.0016	0.5659	25

*Significant at 5% level.
**Significant at 1% level.

The disparity in the findings for the finance and accounting online courses could be due to having different course structures. All finance courses have study material (practice and graded quizzes, exams and test bank, and other supplementary resources such as PowerPoint slides and Answers to Chapter-End questions being embedded into the Canvas LMS system except the course e-textbook. On the other hand, the accounting courses use McGraw-Hill's Connect, which includes the study material (practice and graded quizzes, Exams, and test bank, and other supplementary resources (PowerPoint slides, Answers to Chapter-End questions) available through a link outside the Canvas LMS. Therefore, Canvas's measure for study time (Total Activity) and the number of pages clicked (Page Views) are likely to be undercounted when a student is linked to the McGraw-Hill's Connect site.

CONCLUSION AND SUGGESTIONS

The findings from a sample of online undergraduate finance and accounting courses are consistent with the view of educators that learning and teaching processes are not linear processes to be measured by some predetermined explanatory variables. Two indicators (Total Activity and Page Views) of the Canvas LMS provide limited answers to what determines student success questions.

Due to the limited or no explanatory power of Total Activity and Page Views to explain student success, future research should incorporate more quantitatively linked variables from the online LMS environments. For example, such variables could include the number of submissions made for assignments, participation in discussions, and performance on assessments.

The research findings in this paper indicate that the Total Activity measurement of Canvas LMS does not explain the semester-end average exam scores. However, the Page Views indicator is statistically significant for most finance courses but not accounting courses.

Understanding the efficacy of online teaching is challenging because the medium used through Canvas and other LMS systems provides limited and biased estimation for the student activity on the online platform. However, the challenge is similar to private corporations trying to understand whether time spent or pages clicked online at commercial websites turns into a purchase decision for the final product. For educators, it is essential to understand the student activity, whether time spent or page views on the educational LMS sites contributes to learning and retaining knowledge.

REFERENCES

Bettinger, E. P., Fox, L., Loeb, S., & Taylor, E. S. (2017). Virtual Classrooms: How Online College Courses Affect Student Success. American Economic Review, 107(9) 2855–2875.

Calafiore, P., & Damianov, D. S. (2011). The effect of time spent online on student achievement in online economics and finance courses. The Journal of Economic Education, 42(3), 209-223.

Canvas LMS. (2022). Canvas instructor guide. Retrieved from https://community.canvaslms.com/html/assets/Canvas_Instructor_Guide.pdf

Canvas LMS. (2022). Instructure Community. Retrieved from https://community.canvaslms.com/t5/New-Analytics-Users/Analytics-Page-Views-and-Participations/ta-p/262828.

Crain. S. J. & Ragan, K. P. (2017). Online Versus Face-to-Face Course Learning Effectiveness. Journal of Financial Education, 43(2), 243-261.

Dickinson, D. J., & O'Connell, D. Q. (1990). Effect of quality and quantity of study on student grades. Journal of Educational Research, 83(4), 227-231.

Fendler, R. J., Ruff, C., & Shrikhande, M. (2011). Online Versus In-class Teaching: Learning Levels Explain Student Performance. Journal of Financial Education, 37(3/4), 45-63.

Gleason, J. P., & Walstad, W. B. (1988). An empirical test of an inventory model of student study time. Journal of Economic Education, 19(4), 315- 321.

Küllü, A. M., & Murtagh, J. P. (2019). Online TVM Review and Student Performance. Journal of Financial Education, 45(2), 258-280.

Morgan, J. D. (2015). Online Versus Face-to-Face Accounting Education: A Comparison of CPA Exam Outcomes across Matched Institutions, Journal of Education for Business. 90(8), 420-426.

Noonis, S. A., & Hudson, G. I. (2006). Academic performance of college students: Influence of time spent studying and working. Journal of Education for Business, 81(3), 151-159.

Noonis, S. A., & Hudson, G. I. (2010). Performance of college students: impact of study time and study habits. Journal of Education for Business, 85, 229-238.

THE IMPACT OF USING REAL-WORLD DATA ANALYSIS IN APPLIED BUSINESS STATISTICS COURSES

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ABSTRACT

An increasing number of employers are seeking college graduates with data analysis skills. However, research suggests that students have an aversion to statistics courses and avoid utilizing statistical tools in the workplace. Project-Based Learning has been proven to increase student engagement and achievement, particularly in courses with a heavy mathematical component. To bridge the gap between employer wants and student sentiment related to statistics, instructors of applied business statistics at a regional comprehensive public university implemented a group project that utilized real-word data to answer a research question. This paper examines if and through what channels this group project impacted student performance and knowledge using multiple linear regression models. Results indicate that inclusion of the group project is associated with higher final grades but lower average exam scores, while controlling for student ability using student cumulative grade point average as a proxy. Focusing on the students that completed the project, a higher project grade corresponds to both improved final grades and average exam scores, implying that the project solidifies learning of course concepts.

Keywords*: Project-Based Learning, applied business statistics, business statistics, Microsoft Excel, higher education*

INTRODUCTION

Data analysis has recently become a desired skill requirement for job seekers. As part of preparing undergraduate students for the work force, the applied business statistics course at a regional comprehensive public university has implemented a group project that enables students to apply their skills and knowledge in answering real-world questions. The project simulates real world data analysis using publicly available datasets and applying statistical concepts. In our paper, we analyze how the project impacts college students' statistical learning.

Research has shown that students express negative feelings towards statistical courses (Deckard, 2017). Some even find statistical analyses to be unusable in evaluating information and tend to avoid it in their professional lives (Petocz & Reid, 2005). To combat the negative notion against statistics, a hands-on approach is essential in developing statistical thinking through practical applications. In line with Bailey, Spence, & Sinn (2013) and Dierker et al.

(2018), the assigned group project allows students to discover the practical uses of data analysis and experience it using real-world data.

The applied statistics course implements the Project-Based Learning (PjBL) approach by assigning a group project that is completed throughout the semester. PjBL has risen in popularity in recent decades since it closes the gap between the understanding of concepts and their application. It results in higher levels of student engagement (Wurdinger, Haar, Hugg, & Bezon, 2007) and larger positive effects on student academic achievement (Chen & Yang, 2019). Comparing it with traditional instruction, PjBL is not more demanding in terms of resources and time, and it can even be implemented with few resources available inside the classroom (Al-Balushi & Al-Aamri, 2014). The main principle behind it is to produce a tangible product using real world problems over a period of time (Oguz-Unver & Arabacioglu, 2014).

The application of PjBL in statistics courses creates a positive environment for students to practice statistical techniques using real-world data (Dierker, et al., 2018). Through the project, students can foster deep-level learning and important skills for professional practice (Fernandes, 2014) and connect classroom concepts with the real world (Efstratia, 2014).

Each group is assigned a research question along with a corresponding dataset. The project is comprised of two main steps: Data visualization and regression analysis. The first step is submitted in the middle of the semester in order for students to receive feedback regarding their understanding of the assigned dataset; while the second step is due at the end of the semester which culminates their understanding of statistical concepts.

Studies on the effect of PjBL in higher education are currently limited (Guo, Saab, Post, & Admiraal, 2020). Lee, Blackwell, Drake, & Moran (2014) point out that most of the research focuses mainly on K-12 education, while Kokotsaki, Menzies, & Wiggins (2016) uncover that most studies of PjBL in higher education are centered around engineering courses. Our paper extends the literature by examining the impact of PjBL in a college environment, specifically for a business course.

Through a series of regression analyses, we find that adding a semester-long project increases final course grades but detracts from midterm exam scores. Particularly, we observe that the project is associated with an average increase of 3.11 percentage points in a student's final grade. However, students who were required to complete the project experienced a decrease in midterm grades by 2.57 percentage points on average, compared to students who did not have to take the project. An explanation could be that time spent on the project is substituted away from studying for the exams.

Focusing only on students who have completed the project, we reveal further evidence of the positive effect of the project on learning. Examining the effect of the average project grade, we find that an additional percentage point increase in the project grade is associated with an average increase of 0.29 percentage points in their final course grade and 0.14 percentage points on their average exam grade. Throughout our analyses, we account for higher-achieving students by controlling for their cumulative GPA and credit hours in our regression models.

Our paper proceeds as follows. The following section details the institutional background surrounding the project and class structure. The section after that describes the data used with another section explaining our empirical methodology and results afterwards.

BACKGROUND

Applied statistics is a required undergraduate course for all business-related majors (e.g., economics, finance, management, marketing, etc.). It covers topics ranging from defining and collecting data to analyzing it, utilizing techniques such as multiple linear regression models. Students typically take this course in their junior or senior year, though some sophomores take the course.

Classes generally met in person twice a week (150 instructional minutes per week), except during the COVID-19 pandemic. In Spring 2020, classes were conducted face-to-face until the middle of the semester when both the federal and state governments recommended individuals to limit social gatherings to ten people or less (The White House, 2020). As a response, university administration dictated that students were not to return to campus after their spring break; instead, classes resumed remotely through online live-streaming or recorded lectures. The following academic year (2020-2021) was taught in a hybrid environment[1] following the pandemic restrictions (The White House, 2020). Beginning Fall 2021, instruction was resumed normally, and restrictions were alleviated. Our analysis in the subsequent sections accounts for the changes resulting from the pandemic.

Historically, students were only required to complete homework assignments and exams. As of Fall 2021, a semester-long group project has been implemented in the applied statistics course. Students taking the course in Fall 2021 and each consecutive semester after have been required to complete the group project.

Project

The semester-long group project enables students to perform data analysis techniques, ranging from data visualization to regression analysis. Its goal is to simulate real-world data analysis by applying statistical concepts to publicly available data using Microsoft Excel.[2] Through addressing their assigned research question, students were tasked to clean, organize, visualize, and analyze their dataset. Skills learned from the course include, but are not limited to, the use of Excel pivot tables, charts, formulas, and regression analysis.

Table 1
Examples of Research Questions and their Corresponding Datasets

RESEARCH QUESTION	CORRESPONDING DATASET
What determines the market value of a home?	American Housing Survey
Do crime and crime prevention measures impact student grades?	National Crime Victimization Survey
What factors influence grades for K-12 students?	National Household Education Survey

[1] Half of the students attended in person, while the other half attended remotely via Zoom.

[2] Most middle-skilled jobs require at least basic understanding of Microsoft Excel (Formby, Medlin, & Ellington, 2017). For conciseness, the rest of the paper will refer to Microsoft Excel as Excel.

Students are allowed to choose their own groups and research question/dataset that they were interested in. Example research questions and sources of data are provided in Table 1. Permitting them to self-select into groups increases student engagement and motivation towards the project (Crossouard, 2012; Wurdinger, Haar, Hugg, & Bezon, 2007). Students who did not choose their groups by the deadline are randomly assigned into one. To uphold accountability and responsibility within a group, students are required to complete peer evaluations of their group members.

The project has two main steps: 1. Data visualization and 2. Regression analysis. Each step is submitted separately but is comprehensive in nature; particularly, the regression analysis part can be successfully completed after having a good understanding of their data from the data visualization part. Grading each part separately provides students with ample feedback to learn from their application of statistical techniques and improve upon them. The entire project, including Step 1, Step 2, and peer evaluations accounted for 20 percent of a student's overall course grade.

The first step requires students to clean, organize, and visualize their data. They are asked to determine each variable by its type (numerical or categorical), measure (continuous or discrete), and scale (interval, ratio, nominal, or ordinal). Students are also tasked to provide intuition on how each variable relates to the research question. Lastly, students calculate summary statistics and describe the distribution for each of the variables included in their dataset.

In the second step of the project, they are tasked to analyze data using multiple linear regression models. They are expected to interpret each regression coefficient and perform statistical significance tests (T-tests and F-tests). After estimating several regression models, students determine which one is their preferred model for answering their assigned research question. Students, then, explain their process in choosing their preferred model, including why they believe it is the model that best answers the research question. In justifying their model, they would need to consider the adjusted coefficient of determination (R^2) and statistical significance of each variable. Finally, students comment on the sample size, irrelevant, and omitted variables.

Because of the free-rider[3] problem, students are required to submit peer evaluations of their group members, which is factored into their project grade (Levin, 2003). Peer evaluations were initially submitted at the end of the semester (after students finished Step 2 of the project); however, this enabled less accountability from some students during Step 1 of the project. Therefore, in subsequent semesters, students submit peer evaluations at both stages of the project. To further minimize the free-rider problem, the course imposed the rule that a student's project grade is subject to zero if each of the group members unanimously graded the student

[3] Free-riders include one or more members of a group limiting the work that they contribute, knowing they will benefit from the work of others in the group regardless of how much work they provide.

zero across all categories of the peer evaluation.[4] Although the rule is strict, it has rarely been applied.

Homework

In addition to the project, students complete homework assignments and exams through Pearson's MyLab Statistics,[5] which is a required purchase for all students. The purchase requirement is consistent across all classes of applied business statistics, using the same textbook (Levine, Stephan, & Szabat, 2021) and corresponding online learning platform (MyLab Statistics).

Homework assignments are generally consistent across all classes of applied business statistics. Depending on the instructor and semester, students are assigned between seven to ten homework assignments, with up to two of the lowest homework scores dropped and omitted from the calculation of their overall grade.

In our empirical investigation, detailed in the subsequent section, we closely examine four homework assignments (Chapters 2, 3, 13, and 14) as they are most closely related to the project. Homework assignments on Chapters 2 and 3 are associated with Step 1 of the project, while assignments on Chapters 13 and 14 are related to Step 2 of the project. Chapter 2 covers Excel work, including building pivot tables and charts. Chapter 3 reviews basic statistical calculations, such as mean, median, mode, variance, standard. Chapter 13 is concerned with simple linear regression, while Chapter 14 is comprised of multiple linear regression.

Exams

Students are required to complete three exams and one cumulative final exam. Exams are administered using the MyLab Statistics online platform throughout the entire study period. Before the introduction of the project, students took the first three regular exams outside of class using MyLab Statistics and took the cumulative final exam in class as the only proctored exam. Note, even the cumulative final exam was administered using MyLab Statistics but the physical location the student took the exam changed to in class (a computer lab) with the instructor present. This was true for both instructors.[6] However, during the same semester the project was implemented, the cumulative final exam was made optional for students to replace their lowest

[4] The peer evaluation form lets students grade each of their group members based on five categories: contribution, communication, responsibility, cooperation, and participation. A group member's grade would be the average of ratings across the five categories.

[5] Pearson MyLab Statistics is an online learning platform that includes textbook author content and assignable algorithmic exercises for extra practice (Pearson, 2023).

[6] For the Spring 2020 semester, where half the course was taught in person and the other half online, the cumulative final exam was proctored using Zoom. Students had to Zoom with the instructor while they took the cumulative final exam from home. The same was true for the hybrid academic year, Fall 2020 – Spring 2021.

exam score.[7] Additionally, one instructor began proctoring all exams, meaning students took the tests utilizing MyLab Statistics in class with the instructor present. The other instructor kept a similar format to before the project was implemented and had students take the first two exams outside of class using MyLab Statistics and proctored the third exam in the classroom, still using MyLab Statistics as the online platform.

DATA

Our dataset primarily consists of grades and student performance on assignments that were collected as part of electronic grade books for each section of applied statistics. It contains grades from 1,202 students across 32 course sections taught by two instructors, spanning over a five-year period (Fall 2018 – Fall 2022).[8] Out of the 1,202 students, 774 were not subject to the project, meaning the remaining 428 students were required to complete the project as a part of the course. Summary statistics for student grades and demographic controls are displayed in Table 2. After receiving IRB exemption, demographic data was provided by the university and matched to the corresponding student via student identification numbers. Once merged, the data were de-identified for analysis.

A typical student in our sample is 21 years old and attempts an average of 14.04 hours during the semester they complete the applied statistics course. There are more males (60.00 percent) than females (40.00 percent) in the analytic sample. The breakdown of race shows 60.00 percent of students self-report as white, while another 20.00 percent self-report as Hispanic and 12.00 percent self-report as black or African American. The average cumulative grade point average (GPA) was 2.88 during the semester the student took the course.

To control for differences in instructor experience, ability, and management of course assignments, we include a dummy variable equal to one for Instructor 1 and equal to zero otherwise (for Instructor 2). Instructor 1 (2) was responsible for teaching 63.00 (37.00) percent of the sample. The time variable is equal to one for the first semester included in the sample (Fall 2018) and increases by one for each consecutive semester, meaning if a student took the course Spring 2019, the time variable is equal to two, etc. The time variable captures differences in the course from semester to semester, but it also allows us to control for semesters that the COVID-19 pandemic altered the modality of the course.

The average final grade for students in the sample is 78.08 percent, which is a C letter grade. Students scored higher on average for Chapters 2 and 3 homework than on Chapters 13 and 14 homework, which corresponds with the difficulty of the concepts included in the respective chapters. Chapter 3 homework saw the highest average grade of 78.82 percent, while students had the lowest average grade of 62.54 percent on Chapter 14 homework. A similar

[7] The main reason for this change is that the course content was fully covered by the time of the third exam, meaning there was no new information tested on the cumulative final exam.

[8] The sample excludes students that dropped or withdrew from the course.

pattern arises for exams. Students earned an average of 78.08 percent on Exam 1, 77.38 percent on Exam 2, and 72.12 on Exam 3 to make their average exam grade 75.85 percent.

Table 2
Summary Statistics

	Mean	Standard Deviation	Minimum	Maximum	Observations
Panel A					
Final Grade	78.08	15.61	2.33	103.00	1202
Chapter 2 HW	73.49	29.34	0.00	100.00	1202
Chapter 3 HW	78.82	29.66	0.00	100.00	1202
Chapter 13 HW	72.01	31.78	0.00	100.00	1202
Chapter 14 HW	62.54	32.23	0.00	100.00	1133
Exam 1	78.06	15.61	0.00	101.04	1202
Exam 2	77.38	19.66	0.00	111.38	1202
Exam 3	72.12	21.06	0.00	100.00	1202
Average Exam Grade	75.85	15.52	0.00	101.88	1202
Average Project Grade	81.72	11.83	28.70	100.00	428
Average Peer Evaluation Score	87.05	24.54	0.00	102.00	428
Panel B					
American Indian or Alaskan Native	0.01	0.08	0.00	1.00	1202
Asian	0.01	0.12	0.00	1.00	1202
Black or African American	0.12	0.33	0.00	1.00	1202
Hispanic	0.20	0.40	0.00	1.00	1202
International	0.02	0.13	0.00	1.00	1202
Two or More	0.04	0.20	0.00	1.00	1202
Unknown or Not Reported	0.00	0.07	0.00	1.00	1202
White	0.60	0.49	0.00	1.00	1202
Gender (Female=1)	0.40	0.49	0.00	1.00	1202
Instructor (Instructor 1=1)	0.63	0.48	0.00	1.00	1202
Time	5.28	2.40	1.00	9.00	1202
Age	21.34	3.05	18.00	57.00	1202
Cumulative GPA	2.88	0.63	0.00[9]	4.00	1202
Attempted Hours	12.04	2.27	3.00	21.00	1202

Note: Panel A lists variables associated with student grades. Panel B displays variables related to student controls.

[9] There are ten observations with a cumulative GPA of zero. Eight of them are transfer students (listed as a sophomore, junior, or senior), one is an international student attending for a semester (listed as a freshman), and one is a first-time student taking classes necessary for the master's in professional accountancy program. Keeping these observations in the analysis potentially alters the predictive power of the cumulative GPA variable, but after estimating the models included in the remainder of this paper with and without these ten observations, the main results hold. Thus, we have kept them in the analysis. As a point of reference, the lowest cumulative GPA, ignoring the ten observations with a zero cumulative GPA, is 1.18.

For the students that were subject to the project, the average Step 1 and Step 2 project grade was 81.72 percent. The average peer evaluation score was even higher at 87.05 percent, indicating that students seemed to work well in a group setting according to their peers. Notice that some grade categories have maximum scores higher than 100 percent. That is due to the inclusion of extra credit opportunities in all semesters for both instructors. Specifically, one student is responsible for the maximum final grade and average exam grade reported in Table 2. Three students earned a grade higher than 100 percent on Exam 1, while another three students earned a grade higher than 100 percent on Exam 2 due to extra credit opportunities. The maximum peer evaluation score was 100 for all students, except one in which that student's groupmates insisted this student should earn additional points and the instructor obliged. Thus, the maximum average peer evaluation score that is higher than 100 is associated with one student.

EMPIRICAL METHODS & RESULTS

Employing the data described in the previous section, we estimate several linear regression models to determine if the inclusion of a group project enhances student learning and improves final grades. Since the group project occurs in two steps, we further explore which step of the project has the larger impact on student success. Importantly, the models and results presented in the remainder of this section highlight correlations of the project with learning outcomes. Because all students were subject to the project after its introduction, there is no valid control group that was not subject to the project after it was implemented in the course. Therefore, there is no empirical strategy to exploit that would provide causal impacts. The control group described previously refers to those students that completed the course before the project was implemented. Thus, the results below are correlations.

Project Impact on Grades

The impact of a group project on grades was determined by estimating the following regression model.

$$Y_i = \alpha + \beta Project_i + C_i + \epsilon_i \quad (1)$$

The dependent variable in Equation 1 is either the final grade or the average exam grade for student i. $Project_i$ is a binary indicator equal to one if the student was subject to the project and zero otherwise. C_i contains controls for race, gender, instructor, time, age, cumulative GPA, and attempted hours. The coefficient of interest, β, describes the average effect of the project on final grades or average exam scores. Table 3 displays the results from estimating Equation 1.

A student that was subject to the project is associated with an average increase in their final grade of 3.11 percentage points compared to a student that was not responsible for the project. This result is statistically significant at the 5 percent level. If a student self-reported as

American Indian, Alaskan Native, or International correlated to significantly higher final grades on average compared to students that self-reported as white. Students that enrolled in a section taught by Instructor 1 saw higher grades on average. The coefficient on time indicates that for each additional semester taught, average final grades decreased by 0.61 percentage points on average. We believe this result is due to the negative impact of COVID-19 on student motivation (Borgaonkar, Sodhi, Vijayabalan, & Nair, 2021). Unsurprisingly, increasing a student's cumulative GPA by one entire point (e.g., going from a 2.0 cumulative GPA to a 3.0) increases the average final grade by 12.43 percentage points. Cumulative GPA proxies for student ability. Thus, a higher cumulative GPA can be indicative of a student's academic ability as well as their commitment to learning and dedication to coursework.

Table 3
Estimates of Project Impact on Grades – Indicator

	Final Grade	Average Exam Grade
Project	3.1060**	-2.5660*
	(1.41)	(1.43)
American Indian or Alaskan Native	9.9305**	6.6368
	(5.01)	(5.08)
Asian	9.1351***	8.6596***
	(3.23)	(3.28)
Black or African American	-1.5563	-1.9797
	(1.21)	(1.22)
Hispanic	1.2598	0.6853
	(0.99)	(1.01)
International	5.0698*	5.6164*
	(3.00)	(3.04)
Two or More	-0.7047	-1.2686
	(1.96)	(1.99)
Unknown or Not Reported	-1.0779	-4.7935
	(5.43)	(5.51)
Gender (Female=1)	-0.2182	-1.2977
	(0.79)	(0.80)
Instructor (Instructor 1=1)	3.9113***	3.2937***
	(0.83)	(0.84)
Time	-0.6101**	0.1615
	(0.29)	(0.29)
Age	-0.0761	-0.0899
	(0.13)	(0.13)
Cumulative GPA	12.4349***	11.9241***
	(0.63)	(0.63)
Attempted Hours	0.0038	0.0556
	(0.17)	(0.18)
R^2	0.299	0.271
Observations	1202	1202

Note: The dependent variable in the first column is final grade. The dependent variable in the second column is the average score on Exams 1-3. The variable of interest is an indicator equal to 1 if the student was subject to the project. Standard errors are reported in parentheses below the coefficients. * p<.10, ** p<.05, *** p<.01.

Alternatively, average exam scores dropped once the project was introduced to the course. Specifically, if a student was required to complete the project, their average exam score decreased by 2.57 points on average. Importantly, Step 1 of the project was due in between Exam 1 and Exam 2, while Step 2 was due after Exam 3 but within the same week. This was true for all semesters and instructors. It could be that students subject to the project were shifting time away from studying for exams towards project completion. Student controls have similar impacts on average exam scores as they did on final grades.[10]

Based on our findings, the project increases final grades but detracts from exam scores. The project is a group effort, and it may be the case that the project acts as a grade cushion, allowing students to perform worse on exams as a higher group project counteracts the exam grade category. This is not ideal, but if the project improves overall student learning, there is an argument that the inclusion of the project was beneficial. We explore this possibility in the next section.

Project Impact on Learning

If the group project increases learning, a student's average project grade should increase both their overall grade as well as their average exam grade. This was determined by estimating the following regression model. Note, the model is conditional on the student being subject to the project.

$$Y_i = \alpha + \beta AverageProjectGrade_i + C_i + \epsilon_i \quad (2)$$

The dependent variable in Equation 2 is either the final grade or the average exam grade for student *i*. $AverageProjectGrade_i$ is calculated as the average project grade across Steps 1 and 2. C_i contains controls for race, gender, instructor, time, age, cumulative GPA, and attempted hours. Additionally, C_i includes a control for average peer evaluation score to account for individual student effort in a group setting. The coefficient of interest, β, describes the average effect of the project on final grades or average exam scores only for students that were subject to the project. Table 4 shows the results from estimating Equation 2.

Results indicate that each additional one percentage point increase in a student's average project grade is associated with an average increase of 0.29 percentage points in their final grade and 0.14 percentage points in their average exam grade. The impact of average project grades on final grades is expected since the project is a part of the calculation for a student's final grade. However, the fact that higher average project grades also enhance average exam scores could imply that application of concepts covered during lecture via the project solidify learning and ultimately increase average student performance on exams. Conversely, the positive coefficient associated with average project grade could be picking up that higher achieving students have

[10] Self-identified Asian and international students perform better than self-identified white students. Instructor 1 students had higher average exam grades on average, and students with higher cumulative GPAs earned higher average exam grades.

higher average project scores as well as higher average exam grades. We do not believe that is the case, because we control for cumulative GPA as a measure of student achievement.[11] For this reason, we believe these results imply the project enriches student learning and that spreads to exam performance.

In Equation 2, the project is measured by calculating the average project grade across Step 1 and Step 2. We are interested in understanding how each step of the project influences individual exams. Each step of the project is a potential pathway for applying course concepts to increase learning reflected in grades. Though, only Step 1 of the project has subsequent exams that occur after the project deadline. The next section explores Step 1 of the project.

[11] Again, student controls have similar effects on final grades and average exam scores as previous model estimations. Even though the project is a group effort, students that garner higher average peer evaluation scores increase both final grades and average exam grades, signifying the importance of being a team player.

Table 4
Estimates of Project Impact on Grades – Average Project Grade

	Final Grade	Average Exam Grade
Average Project Grade	0.2912***	0.1372**
	(0.04)	(0.05)
Average Peer Evaluation Score	0.2314***	0.2284***
	(0.02)	(0.03)
American Indian or Alaskan Native	3.6035	5.0783
	(9.47)	(12.50)
Asian	8.5168**	10.3425**
	(3.63)	(4.80)
Black or African American	-1.8669	-3.1304
	(1.46)	(1.93)
Hispanic	1.7480	1.5071
	(1.16)	(1.53)
International	9.6637**	11.9019**
	(4.30)	(5.67)
Two or More	-1.4972	-2.9461
	(2.42)	(3.20)
Unknown or Not Reported	6.1652	8.9749
	(6.70)	(8.85)
Gender (Female=1)	0.0192	-0.3436
	(0.96)	(1.27)
Instructor (Instructor 1=1)	3.6446***	3.8343***
	(0.92)	(1.22)
Time	0.1511	0.6018
	(0.57)	(0.75)
Age	-0.1974	-0.2571
	(0.14)	(0.18)
Cumulative GPA	7.3503***	8.9932***
	(0.72)	(0.95)
Attempted Hours	0.0487	0.1707
	(0.21)	(0.27)
R^2	0.562	0.428
Observations	428	428

Note: The dependent variable in the first column is final grade. The dependent variable in the second column is the average score on Exams 1-3. The variable of interest is the average project grade across two steps. Estimates are conditional on the student being subject to the project. Standard errors are reported in parentheses below the coefficients. * p<.10, ** p<.05, *** p<.01.

Step 1 Project Impact on Grades

The impact of Step 1 of the group project on grades was determined by estimating the following regression model. Note, this is conditional on the student being subject to the project.

$$Y_i = \alpha + \beta Step1ProjectGrade_i + C_i + \epsilon_i \quad (3)$$

The dependent variable in Equation 3 is either Exam 2 or Exam 3 grade for student *i*. $Step1ProjectGrade_i$ is the grade earned on Step 1 of the project for student *i*. C_i contains the

same controls included in Equation 2. The coefficient of interest, β, describes the average effect of Step 1 of the project on Exam 2 or Exam 3 only for students that were subject to the project. Table 5 illustrates the results from estimating Equation 3.

Table 5
Estimates of Project Impact on Grades – Step 1 Project Grade

	Exam 2	Exam 3
Step 1 Project Grade	0.1238 (0.08)	0.0421 (0.08)
Average Peer Evaluation Score	0.2199*** (0.04)	0.3258*** (0.04)
American Indian or Alaskan Native	-5.8794 (17.46)	12.6036 (17.96)
Asian	12.2485* (6.70)	9.5984 (6.89)
Black or African American	-4.2053 (2.70)	-1.9804 (2.77)
Hispanic	1.7184 (2.14)	1.7625 (2.20)
International	13.4508* (7.92)	13.2528 (8.14)
Two or More	-0.9526 (4.47)	-7.8620* (4.59)
Unknown or Not Reported	13.2556 (12.35)	1.2321 (12.70)
Gender (Female=1)	-2.9606* (1.77)	1.6975 (1.82)
Instructor (Instructor 1=1)	8.3218*** (1.70)	3.9130** (1.75)
Time	1.1530 (1.04)	0.8430 (1.07)
Age	-0.0670 (0.25)	-0.5501** (0.26)
Cumulative GPA	9.2486*** (1.32)	10.5770*** (1.36)
Attempted Hours	0.3723 (0.38)	0.3774 (0.39)
R^2	0.299	0.363
Observations	428	428

Note: The dependent variables are Exam 2 and Exam 3, which occurred after Step 1 of the project was due. The variable of interest is the Step 1 project grade. Estimates are conditional on the student being subject to the project. Standard errors are reported in parentheses below the coefficients. * p<.10, ** p<.05, *** p<.01.

The exams evaluated in this section occur after Step 1 of the project. Results included in Table 5 show that the first step of the project is not correlated with subsequent exams, implying pass-through of learning from the project is associated more with Step 2 than Step 1. This result is intuitive as Step 1 tasks on the project are related to basic definitions, Excel skills, and calculating descriptive statistics. Further, those concepts are a review from prerequisite courses.

Information tested on Exams 2 and 3 are methods of analyzing data like hypothesis testing and regression analysis.

Results in Table 4 show the project increases average exam scores, and suggests students learn the course content not only through lecture and homework but also through application by completing the project. Results in Table 5 imply said learning occurs more so for Step 2 of the project, which is associated with regression analysis, than for Step 1, which is connected to visualizing and organizing data.

Robustness Checks

The COVID-19 pandemic impacted Spring 2020, Fall 2020, and Spring 2021 semesters. In the semester directly after COVID-19 restrictions were removed, the semester-long group project was introduced to the business statistics course. One potential issue with the results presented previously in the paper is that the introduction of the project and the end of COVID-19 restrictions occurred simultaneously. Given the current empirical strategy, we are able to control for differences in student cohorts from semester to semester as well as instructor teaching proficiency using the time variable. A different way to control for these issues that also disentangles each semester's impact on student outcomes is to utilize dummy variables for each semester in the sample, leaving out one semester in the analysis to avoid perfect multicollinearity. The key benefit of employing the dummy variables to control for time effects is that it also controls for the differential impact of each semester, including those that happen before, during, and after the COVID-19 pandemic, on student outcomes.

After re-estimating Equations 1, 2, and 3 with the semester dummies instead of the individual time variable, results are relatively similar to the original specifications.[12] Signs and statistical significance remain the same. Magnitudes vary slightly. Appendix Tables A.1-A.3 display comparisons of original specifications and robustness checks.

CONCLUSION

This paper has shown how students respond to the inclusion of a group project in an applied business statistics course. Students that were responsible for completing the project saw higher grades but lower average exam scores than their counterparts that did not have to carry out said project. One interpretation of this finding is that students taking the course in a semester with the project substituted study time away from exams towards the project. Another interpretation is that students were able to put forth less effort in the course, because the project was completed by a group and free-riding could occur.

[12] Equation 1 includes all 1,202 observations in the analytic sample as well as all semesters, Fall 2018 – Fall 2022. The semester dummy that is left out of the model estimation is Fall 2018. Equations 2 and 3 solely focus on students that were subject to the project, which started in Fall 2021. Therefore, the semester dummy that is left out of the model estimations is Fall 2021.

By focusing only on the students that completed the project, we found that earning a higher project grade was associated with both a higher average exam grade and final course grade. Notably, we controlled for student ability and achievement by including cumulative GPA in the analysis. While our results showing higher average project grades increase final grades are unsurprising, the fact that we find higher project grades also improve average exam scores is important.

The project is a direct application of skills and concepts learned throughout the course via lectures and homework assignments. The exams are built using similar questions to those found on the homework, whereas the project is a comprehensive application of their skills in a different setting, one that is far less controlled and restrictive than their homework and exam setting. We interpret the finding that a higher average project grade improves average exam grades as evidence that the project solidifies learning of course material. Additionally, we determined that the second step of the project that focuses on linear regression analysis is responsible for this enhanced learning of key concepts. We believe this is the case because the first step of the project is repetition of information covered in prerequisite courses.

Overall, our paper contributes to the literature by examining the effects of Project-Based Learning in an applied business statistics course as most studies set in higher education revolve around engineering courses. Our findings provide further support for its effectiveness, extending the literature on Project-Based Learning's impact in a college environment. Ultimately, we find that the project has a positive impact on student learning, as evidenced by higher average exam grades and course grades.

REFERENCES

Al-Balushi, S. M., & Al-Aamri, S. S. (2014). The effect of environmental science projects on students' environmental knowledge and science attitudes. *International Research in Geographical and Environmental Education, 23*(3), 213-227.

Bailey, B., Spence, D. J., & Sinn, R. (2013). Implementation of discovery projects in statistics. *Journal of Statistics Education, 21*(3), 1-24.

Borgaonkar, A. D., Sodhi, J., Vijayabalan, R., & Nair, A. S. (2021). A Comparative Study of the Impact of COVID-19 Pandemic on Student Participation and Performance in First-Year Engineering Courses. *2021 ASEE Virtual Annual Conference Content Access* (pp. 1-9). Virtual Conference: ASEE Conferences. Retrieved from https://peer.asee.org/36566

Chen, C.-H., & Yang, Y.-C. (2019). Revisiting the effects of project-based learning on students' academic achievement: A meta-analysis investigating moderators. *Educational Research Review, 26*, 71-81.

Crossouard, B. (2012). Absent presences: The recognition of social class and gender dimensions within peer assessment interactions. *British Educational Research Journal, 38*(5), 731-748.

Deckard, N. M. (2017). Statistics Education for Undergraduate Sociology Majors: Survey Findings across Institutions. *Numeracy: Advancing Education in Quantitative Literacy, 10*(2), 1-17.

Dierker, L., Evia, J. R., Singer-Freeman, K., Woods, K., Zupkus, J., Arnholt, A., . . . Rose, J. (2018). Project-based learning in introductory statistics: Comparing course experiences and predicting positive outcomes for students from diverse educational settings. *International Journal of Educational Technology and Learning, 3*(2), 52-64.

Efstratia, D. (2014). Experiential education through project based learning. *Procedia-Social and Behavioral Sciences, 152*, 1256-1260.

Fernandes, S. R. (2014). Preparing graduates for professional practice: findings from a case study of Project-based Learning (PBL). *Procedia-Social and Behavioral Sciences, 139*, 219-226.

Formby, S. K., Medlin, D., & Ellington, V. B. (2017). Microsoft Excel: Is it an important job skill for college graduates? *Information Systems Education Journal, 15*(3), 55-63.

Guo, P., Saab, N., Post, L. S., & Admiraal, W. (2020). A review of project-based learning in higher education: Student outcomes and measures. *International Journal of Educational Research, 102*, 101586. doi:https://doi.org/10.1016/j.ijer.2020.101586

Kokotsaki, D., Menzies, V., & Wiggins, A. (2016). Project-based learning: A review of the literature. *Improving Schools, 19*(3), 267-277.

Lee, J. S., Blackwell, S., Drake, J., & Moran, K. A. (2014). Taking a leap of faith: Redefining teaching and learning in higher education through project-based learning. *Interdisciplinary Journal of Problem-Based Learning, 8*(2), 19-34.

Levin, P. (2003). Running group projects: dealing with the free-rider problem. *Planet, 9*(1), 7-8.

Levine, D. M., Stephan, D., & Szabat, K. A. (2021). *Statistics for Managers Using Microsoft Excel.* Pearson.

Oguz-Unver, A., & Arabacioglu, S. (2014). A comparison of inquiry-based learning (IBL), problem-based learning (PBL) and project-based learning (PJBL) in science education. *Academia Journal of Educational Research, 2*(7), 120-128.

Pearson. (2023). *MyLab Statistics*. Retrieved April 21, 2023, from Pearson: https://mlm.pearson.com/northamerica/mystatlab/educators/statistics-features/index.html

Petocz, P., & Reid, A. (2005). Something strange and useless: Service students' conceptions of statistics, learning statistics and using statistics in their future profession. *International Journal of Mathematical Education in Science and Technology, 36*(7), 789-800.

The White House. (2020, March 16). *15 Days to Slow the Spread*. Retrieved April 24, 2023, from Trump White House Archives: https://trumpwhitehouse.archives.gov/articles/15-days-slow-spread/

The White House. (2020, March 24). *Remarks by President Trump, Vice President Pence, and Members of the Coronavirus Task Force in Press Briefing*. Retrieved April 24, 2023, from Trump White House Archives: https://trumpwhitehouse.archives.gov/briefings-statements/remarks-president-trump-vice-president-pence-members-coronavirus-task-force-press-briefing-9/

Wurdinger, S., Haar, J., Hugg, R., & Bezon, J. (2007). A qualitative study using project-based learning in a mainstream middle school. *Improving Schools, 10*(2), 150-161.

APPENDIX

Table A.1
Estimates of Project Impact on Grades – Indicator

	Final Grade Original	Final Grade	Average Exam Grade Original	Average Exam Grade
Project	3.1060**	3.6038*	-2.5660*	1.9747
	(1.41)	(1.96)	(1.43)	(2.00)
American Indian or Alaskan Native	9.9305**	8.6680*	6.6368	5.5657
	(5.01)	(4.96)	(5.08)	(5.05)
Asian	9.1351***	9.9313***	8.6596***	9.1433***
	(3.23)	(3.21)	(3.28)	(3.26)
Black or African American	-1.5563	-1.5025	-1.9797	-1.9962
	(1.21)	(1.20)	(1.22)	(1.22)
Hispanic	1.2598	1.5292	0.6853	0.9256
	(0.99)	(0.99)	(1.01)	(1.00)
International	5.0698*	5.0795*	5.6164*	5.8206*
	(3.00)	(2.98)	(3.04)	(3.03)
Two or More	-0.7047	-0.7715	-1.2686	-1.1864
	(1.96)	(1.95)	(1.99)	(1.98)
Unknown or Not Reported	-1.0779	-0.9384	-4.7935	-3.9933
	(5.43)	(5.40)	(5.51)	(5.49)
Gender (Female=1)	-0.2182	-0.2793	-1.2977	-1.3576*
	(0.79)	(0.78)	(0.80)	(0.80)
Instructor (Instructor 1=1)	3.9113***	4.1444***	3.2937***	3.6493***
	(0.83)	(0.84)	(0.84)	(0.86)
Time	-0.6101**		0.1615	
	(0.29)		(0.29)	
Spring 2019 (Time=Spring 2019=1)		3.4683*		1.0384
		(1.96)		(1.99)
Fall 2019 (Time=Fall 2019=1)		5.7878***		4.8225**
		(1.98)		(2.02)
Spring 2020 (Time=Spring 2020=1)		5.3198***		5.9791***
		(1.92)		(1.96)
Fall 2020 (Time=Fall 2020=1)		-0.1610		1.6062
		(1.93)		(1.96)
Spring 2021 (Time=Spring 2021=1)		-1.1368		0.9759
		(1.96)		(1.99)
Fall 2021 (Time=Fall 2021=1)		-1.8249		-2.8434*
		(1.52)		(1.55)
Spring 2022 (Time=Spring 2022=1)		0.0000		0.0000
		(0.00)		(0.00)
Fall 2022 (Time=Fall 2022=1)		-0.0149		-0.4234
		(1.60)		(1.62)
Age	-0.0761	-0.0505	-0.0899	-0.0830
	(0.13)	(0.13)	(0.13)	(0.13)
Cumulative GPA	12.4349***	12.5827***	11.9241***	12.0286***
	(0.63)	(0.62)	(0.63)	(0.63)
Attempted Hours	0.0038	0.0553	0.0556	0.0846
	(0.17)	(0.17)	(0.18)	(0.18)
R^2	0.299	0.317	0.271	0.286
Observations	1202	1202	1202	1202

Note: The dependent variable in the first and second columns is final grade. The dependent variable in the third and fourth columns is the average score on Exams 1-3. The variable of interest is an indicator equal to 1 if the student was subject to the project. Standard errors are reported in parentheses below the coefficients. * p<.10, ** p<.05, *** p<.01.

Table A.2
Estimates of Project Impact on Grades – Average Project Grade

	Final Grade Original	Final Grade	Average Exam Grade Original	Average Exam Grade
Average Project Grade	0.2912*** (0.04)	0.2929*** (0.04)	0.1372** (0.05)	0.1396** (0.05)
Average Peer Evaluation Score	0.2314*** (0.02)	0.2354*** (0.02)	0.2284*** (0.03)	0.2340*** (0.03)
American Indian or Alaskan Native	3.6035 (9.47)	4.5285 (9.44)	5.0783 (12.50)	6.3785 (12.45)
Asian	8.5168** (3.63)	8.7494** (3.62)	10.3425** (4.80)	10.6695** (4.77)
Black or African American	-1.8669 (1.46)	-1.6020 (1.46)	-3.1304 (1.93)	-2.7580 (1.93)
Hispanic	1.7480 (1.16)	1.9067* (1.16)	1.5071 (1.53)	1.7301 (1.53)
International	9.6637** (4.30)	10.1159*** (4.28)	11.9019** (5.67)	12.5376** (5.65)
Two or More	-1.4972 (2.42)	-1.2736 (2.42)	-2.9461 (3.20)	-2.6319 (3.19)
Unknown or Not Reported	6.1652 (6.70)	6.9220 (6.69)	8.9749 (8.85)	10.0387 (8.82)
Gender (Female=1)	0.0192 (0.96)	-0.0687 (0.96)	-0.3436 (1.27)	-0.4671 (1.26)
Instructor (Instructor 1=1)	3.6446*** (0.92)	3.6226*** (0.92)	3.8343*** (1.22)	3.8033*** (1.21)
Time	0.1511 (0.57)		0.6018 (0.75)	
Spring 2022 (Time=Spring 2022=1)		2.1708** (1.10)		3.4408** (1.45)
Fall 2022 (Time=Fall 2022=1)		0.1445 (1.13)		0.9819 (1.49)
Age	-0.1974 (0.14)	-0.2104 (0.13)	-0.2571 (0.18)	-0.2755 (0.18)
Cumulative GPA	7.3503*** (0.72)	7.4465*** (0.72)	8.9932*** (0.95)	9.1285*** (0.95)
Attempted Hours	0.0487 (0.21)	0.0267 (0.21)	0.1707 (0.27)	0.1398 (0.27)
R^2	0.562	0.567	0.428	0.435
Observations	428	428	428	428

Note: The dependent variable in the first and second columns is final grade. The dependent variable in the third and fourth columns is the average score on Exams 1-3. The variable of interest is the average project grade across two steps. Estimates are conditional on the student being subject to the project. Standard errors are reported in parentheses below the coefficients. * p<.10, ** p<.05, *** p<.01.

Table A.3
Estimates of Project Impact on Grades – Step 1 Project Grade

	Exam 2 Original	Exam 2	Exam 3 Original	Exam 3
Step 1 Project Grade	0.1238 (0.08)	0.1236 (0.08)	0.0421 (0.08)	0.0411 (0.08)
Average Peer Evaluation Score	0.2199*** (0.04)	0.2218*** (0.04)	0.3258*** (0.04)	0.3352*** (0.04)
American Indian or Alaskan Native	-5.8794 (17.46)	-5.4410 (17.49)	12.6036 (17.96)	14.7279 (17.86)
Asian	12.2485* (6.70)	12.3612* (6.70)	9.5984 (6.89)	10.1446 (6.85)
Black or African American	-4.2053 (2.70)	-4.0822 (2.71)	-1.9804 (2.77)	-1.3839 (2.76)
Hispanic	1.7184 (2.14)	1.7945 (2.15)	1.7625 (2.20)	2.1315 (2.19)
International	13.4508* (7.92)	13.6723* (7.93)	13.2528 (8.14)	14.3260* (8.10)
Two or More	-0.9526 (4.47)	-0.8504 (4.47)	-7.8620* (4.59)	-7.3668 (4.57)
Unknown or Not Reported	13.2556 (12.35)	13.6049 (12.37)	1.2321 (12.70)	2.9247 (12.63)
Gender (Female=1)	-2.9606* (1.77)	-2.9987* (1.77)	1.6975 (1.82)	1.5128 (1.81)
Instructor (Instructor 1=1)	8.3218*** (1.70)	8.3092*** (1.70)	3.9130** (1.75)	3.8519** (1.73)
Time	1.1530 (1.04)		0.8430 (1.07)	
Spring 2022 (Time=Spring 2022=1)		2.1030 (2.04)		5.4470*** (2.09)
Fall 2022 (Time=Fall 2022=1)		2.2350 (2.09)		1.3424 (2.14)
Age	-0.0670 (0.25)	-0.0732 (0.25)	-0.5501** (0.26)	-0.5801** (0.26)
Cumulative GPA	9.2486*** (1.32)	9.2960*** (1.33)	10.5770*** (1.36)	10.8069*** (1.35)
Attempted Hours	0.3723 (0.38)	0.3622 (0.38)	0.3774 (0.39)	0.3285 (0.39)
R^2	0.299	0.300	0.363	0.373
Observations	428	428	428	428

Note: The dependent variables are Exam 2 in the first and second columns and Exam 3 in the third and fourth columns, which occurred after Step 1 of the project was due. The variable of interest is the Step 1 project grade. Estimates are conditional on the student being subject to the project. Standard errors are reported in parentheses below the coefficients. * p<.10, ** p<.05, *** p<.01.

EXPERIENTIAL LEARNING AS A DEVELOPMENT TOOL FOR ENTREPRENEURIAL MINDSETS: THE CASE FOR STIMULATION ASSIGNMENT

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ABSTRACT

An entrepreneurial mindset is often referred to as essential for successful entrepreneurs. What is not as thoroughly vetted is how one obtains, creates, or develops this mindset. Its characteristics, dimensions, and features have been researched, but the way that one assimilates and embeds such an orientation is less researched. We suggest that it is through experiences putting the characteristics, dimensions, and features into action (i.e., by working on and improving one's entrepreneurial skills and reflecting on experiences) that develops an entrepreneurial mindset. This paper includes a review of entrepreneurial mindset and presents a case in which an experiential-based learning program was deployed to "stimulate" participants as they developed entrepreneurial skills that informed each individual's mindset.

Keywords: *design thinking, entrepreneurial behavior (mindset), entrepreneurial competencies, pedagogy*

INTRODUCTION

Mindsets are a set of shortcuts to thinking, behaving, and feeling that become automatic and help guide actions (Kuratko et al., 2021). This means that people develop different mindsets to handle varying contexts or situations that they may encounter. Exposure to such contexts and situations is one step, whereas sustained exposure constitutes the longer journey wherein one adapts along the way and comes out on the other side: changed. We will explore one current understanding of the composition of a mindset and then move to how one develops mindset by using the Entrepreneurial Mindset and training in its use through training in the use of entrepreneurial skills. A review of the importance of not only reflection, but critical reflection, as a process for breaking habitual patterns in established mindsets and reframing how students think. Finally, an introduction to a stimulation-based learning project facilitated through the KANU Marketplace, an interactive peer-to-peer web/app-based marketplace where students can build business ventures, will be presented. To these ends, entrepreneurship education should be less about acquiring a rote set of concepts emphasizing 'what to think' to being more focused on cultivating an approach to navigating evolving information and 'how to think.'

FRAMING MINDSETS AND THE ENTREPRENEURIAL MINDSET

In this section, a review of relevant literature discussing mindset and entrepreneurial mindset (EM) will be used to frame as a key factor in our equation. Next, a review of experiential learning theory (ELT) as a pedagogical tool for developing mindset will be included as an important variable in the process for leveraging entrepreneurial skillset development (ES) as conduit for entrepreneurial mindset development. Simply stated, our goal is to demonstrate a heuristic that simply frames the relationship between ELT and ES with the goal of development EM. It should be noted this is iterative in nature, whereby as EM grows, subsequent iterations of ELT and ES application will increase EM over time:

ELT + ES = EM

MINDSET OVERVIEW

Mindsets are a living, dynamic repository of our assumptions, beliefs, heuristics, schemas, mental models, and other tools (Mitchell et al., 2002), that individuals have repeatedly created or used to make sense of their surroundings and enable individuals to conserve effort as they proceed through their days. A plethora of mindsets exist ranging from perspectives in doing research and solving problems: Analytical mindsets (Zyphur, 2009); the expected professional actions of scientists, i.e., scientific mindsets (Hayter et al., 2021); from managers to entrepreneurs (Boisot & MacMillan, 2004); and from a growth mindset to a fixed mindset (Dweck, 2006). Several scholars have pointed to variations across these different mindsets (Boisot & MacMillan, 2004; Dweck, 2006; Hayter et al., 2021). Such variations may be attributable to individual life paths in learning (Hayter et al., 2021); differences in their "beliefs," "truths," and "justifications" (Boisot & MacMillan, 2004); or differences in how much credit an individual puts into thinking, behaving, and feeling (Kuratko et al., 2021). Nevertheless, the result is the same: there are great variations even within categories of mindsets. The mindsets help define what action is appropriate in the circumstances that trigger the mindset (Boisot & MacMillan, 2004). This occurs because the mindsets hold different facets of knowledge and, to be effective, the knowledge guiding actions needs to match needs in the external environment.

This argues that diverse mindsets have fundamentally different epistemological bases (Boisot & MacMillan, 2004), thereby triggering different behaviors. Boisot and MacMillan demonstrated this through their research when they matched different knowledge management processing tools with assessment needs (p. 518). Their approach matched an assessment need (determining possibilities), with the knowledge management processing tools of brainstorming and scenario analysis. They matched an assessment need of providing a plausible solution with pattern generation and recognition tools. They further matched the assessment need of determining and acting on probabilities with the use of statistical processing and analysis tools. Finally, they matched the need of actualities determination with optimization techniques. Often selecting the right time to act, is as important as the action taken. Therefore, prior knowledge and

experience may be critical in having the action taken to be successful (Gruber et al., 2013; Shepherd & DeTienne, 2005).

Different mindsets use different "rules" or "heuristics" on when to act. For example, a managerial mindset seeks evidence to justify an action to be taken, while an entrepreneurial mindset puts its resources on the line and acts (Boisot & MacMillan, 2004). Moreover, an entrepreneurial mindset has been described as one that seeks to create the future, not necessarily predict, or forecast it, as captured in effectuation theory (Sarasvathy, 2008). Mindsets are a synthesis that includes the beliefs, values, and rules (whether explicit or implicit) of action of an associated role or identity. The latter depends on whether an individual has internalized the role to the point where it becomes one of that individual's various identities. The specific set is shaped by confluence of education (Haynie et al., 2010); societal expectations (Dweck et al., 1995); previous experiences (Greenwald & Banaji, 1995) of the individual, and the ability to make meaning from those experiences via reflection and critical reflection (A "critical" reflection framework, 2007).

All this influences and informs the action chosen by an individual. This implies that given different circumstances and individuals, even in the same role, different actions may be taken even though those with similar core beliefs may have actions that will fit into a category while not being exactly the same. Just as thoughts guide actions and emotions, so too do actions impact thoughts and emotions. This internal influence over time does not mean that these mindsets in use are static. On the contrary, mindsets tend to be dynamic in their components and use. They are considered as flexible and self-regulating. They tend to match the dynamism and complexity of the individual's environment (Haynie & Shepherd, 2009; Hayter et al., 2021). Some even refer to this ability for dynamic changes in the thinking patterns and recognizing when they are effective as being a metacognitive ability of effectively using mindsets (Haynie et al., 2010). Further, they see the dynamism as evidence that a mindset has the capacity to be a metacognitive tool, a way to examine how one is thinking about thinking, when it is used in a conscious fashion.

This does not mean that all mindsets are equally influential for an individual. Usually there is a central mindset that is used by an individual that is related to the individual's strongest sense of identity or in the role that the individual is currently engaged (parent, sibling, child, worker, boss, etc.). Often this mindset is related to a specific role that an individual needs to execute at the current time. This role, when used often, may morph into an identity that an individual can call upon as needed. Certain societal expectations and behaviors are associated with each identity, which in-turn encompasses a way of being. Individuals accept these roles and identities based on their alignment with core values and beliefs (Badaracco, 1998). The greater the alignment the more likely an individual will embrace a role and repeat it until it becomes an identity (O'Neil et al., 2022). Individuals may develop an identity through a series of narratives about that identity in action (Phillips et al., 2013) and chose an identity based on external conditions and social clues (Greenhaus & Powell, 2003). Some identities become sticky and take over time, resources, and/or quality of life areas outside of their initial use and individuals with a sticky identity may inappropriately use that identity in a context that does not support it (Sull & Houlder, 2005).

ENTREPRENEURIAL MINDSET

Recently, several scholars set out to clarify the entrepreneurial mindset construct. For instance, the literature review in Kuratko et al. (2021). provides a way to understand the dynamics and dimensions of the use of mindset specifically in entrepreneurship. Some things bear repeating: the first is that the mindset construct is not merely cognitive but has aspects of affectation (emotion) and situation-bounded behaviors which must all be included to be understood (2021, p. 1682). As noted previously, entrepreneurial mindset includes an emphasis on effectuation theory, which codifies the idea that entrepreneurs seek to create the future, not predict it (Sarasvathy, 2008). It is also a construct that is defined and delimited in its use; thus, each person has a unique blend of entrepreneurial behaviors. This mutual causation allows us to link to complexity theory and understand that prescriptive forecasts are not possible but general and repeatable patterns are discernable. Discernable means others can see some patterned behaviors that can be codified.

While some aspects of a mindset are readily visible to others; others are more internal such as the use of metacognitive processes (Naumann, 2017) resulting in cognitive adaptability, i.e., reviewing how you are thinking and making adjustments rapidly under conditions of uncertainty and ambiguity (Haynie et al., 2010; Haynie & Shepherd, 2009). Visible aspects are general and can be used across many contexts and shared with others. There are five that may be seen, according to Naumann (2017). We offer this set of visible, but not always conscious, set of attributes in a slightly different configuration than did Nauman. Based on the work by Kuratko and associates (2021), these attributes visible or used will fall into three categories: cognitive (thinking), affective (emotions), and behaviors (volition or actions guided by the previous two). It sparks the questions – in what ways does an entrepreneur think; in what ways does an entrepreneur feel; and, in what ways does an entrepreneur act?

Cognitive Dimension

Mindsets are complex mental models that people use to control the amount of energy they must spend in specific context. The most critical short cut that an entrepreneur needs, is to rapidly decide how to think in any given context but especially when contexts are uncertain and ambiguous (Kuratko et al., 2021). The thinking skills range from simple constructs like paying attention to meta-cognitive aspects like revising decision making processes (Ireland et al., 2003). The key though is to realize that significant elements of the external context like the presence of an opportunity, the emergence of the firm that they have been working on and internal epiphanies like realizing that one really is an entrepreneur (Morris et al., 2012) will all impact their thinking. The discussion on opportunities above and the recognition that as contexts change so too must an entrepreneur's mindset imply that not only must an entrepreneur create a way of thinking appropriate for ambiguous situations but that it must be revisited when changes occur and then it must be applied once a suitable opportunity has been focused upon.

Affective Dimension

Entrepreneurs have a reputation of being risk takers. This is true but not in the sense of taking unjustified risks. They are the ones that take on marketplace risk (Schumpeter, 1942). There is risk entailed even at the conceptualization stage for a new business when a would-be entrepreneur presents ideas for prospective customers to either support or reject. To these ends, there is more in play than simply "knowing the facts" or "building the plane while in the air." There is an intangible sort of tacit element that is inherently coded to the core feeling and emotive aspect of the entrepreneur. Now then, this is more tangible than a sort of flippant *je ne sais quoi* mentality. The affective or subjectively experienced feeling is a key ingredient to the entrepreneurial mindset and is captured most prominently in Design Thinking (DT). "DT is generally defined as an analytic and creative process that engages a person in opportunities to experiment, create and prototype models, gather feedback, and redesign" (Razzouk & Shute, 2012). The first step in the DT process is: empathize. This step focuses on leveraging human capacity to demonstrate emotional empathy or recognizing an instinctive, affective, shared, and mirrored experience of one to another (Spencer, 1855). Gasparini (2015) noted that within the context of DT, designers apply empathy – first – to "acquire insight into users' needs," and inform every subsequent step in the DT process. In this, the user is key, and this is typically referred to as UX (user experience). He also provided a practical example whereby participants applying DT approach UX engagement empathically to uncover relevant solutions. Finally, in their investigation into the role of empathy in DT, Köppen & Meinel (2015) recognized that empathy in organizations is the conduit for creating sense (meaning) and knowledge (cognition). Here it is evident that the affective, tacit, human emotion is being leveraged through a codified cognitive process (DT) and technically applied (through behavioral approach to entrepreneurial pursuits). This serves as an example of a mindset thread braiding explicitly with a skillset thread, connected via applied experiential learning.

Behavioral Dimension

Entrepreneurs are known for action taking and this is where the rubber hits the road, proverbially speaking. Though, long before starting a firm, they will have entrepreneurial goals that they will share. The entrepreneur's values will guide their action choice (Alvarez et al., 2013). The ability to continue to take action in the face of an ambiguous context indicates that the entrepreneur will be engaged in sensemaking and displaying that behavior for others to witness (Kuratko et al., 2021). Tang et al. (2012) identified three dimensions associated with the alertness construct: environmental scanning and searching heightens entrepreneurial knowledge base, association and connection links external observations with a novel perspective, and evaluation and judgement focus to determine possible opportunity. However, the full set of entrepreneurial action taking ranges from scanning for opportunities (Baron, 2006) to assembling resources and individuals needed to initiate the new venture (Dobni et al., 2000). Over time, one evolves from naïve optimist to a more realistic entrepreneur (Hmieleski & Baron, 2009) along with having an entrepreneurial mindset that can become more adaptable and flexible

To further nurture these mindset dimensions, experience is critical. Though the challenge is that intangible mindset aspects are difficult (if not impossible) to develop outside of the pursuit of something that is tangible. Hence, pursuit of entrepreneurial skillset development by way of applied experiential learning can indirectly influence the development of the entrepreneurial mindsets that we want to see in our novice or even proto-entrepreneurs. It seems that this is how entrepreneurs in the real world grow and develop themselves.

EXPERIENTIAL LEARNING AS A DEVELOPMENT TOOL FOR ENTREPRENEURIAL MINDSETS

It has been extensively noted that the best ways to learn the art and science of being an entrepreneur (or being entrepreneurial) is through "learning by doing" (Politis, 2005). Applied experiential learning, inclusive of real-life/real-world situations are likely to evoke the three dimensions mentioned previously (cognitive, affective, and behavioral). In accessing students' entrepreneurial skills development through (Chang & Rieple, 2013) investigation, it was determined that significant growth was realized in students' perceptions of their skills through hands-on applied projects. To note, the skills being measured were based on Lyons and Lyons, 2002 and their categories of technical, management, entrepreneurship, and personal maturity while the categories associated with the knowledge skills and abilities of the entrepreneurial mindset are cognitive, affect and behaviors.

Because of the "doing" emphasis from Politis (2005), we can perhaps best understand the behaviors as the conscious or unconscious attempt to put the cognitive understanding into action given the person's affective state and external context. When we look at the set of skills provided by Lyons and Lyons in 2002 and confirmed in 2013 by Chang and Rieple, it is evident that the act of attempting to put entrepreneurial constructs into action may also require additional task skills. However, Chang and Rieple (2013) found that having a hybrid learning method, which balanced on the job training (OJT) and pure academic teaching, enables students to also learn tacit skills as well as explicit skills. For example: the limited time environment of "real world" problems enhanced the uncertainty and ambiguity that students had little previous experience handling. The real world project that was the basis for the learning resulted in students learning to assess conditions, and choose appropriate entrepreneurial knowledge to apply even in conditions of uncertainty and ambiguity (Chang & Rieple, 2013). This active hands-on experiential learning for entrepreneurs is called for and determined valuable by multiple researchers (Chang & Rieple, 2013; Lyons & Lyons, 2002; Politis, 2005). The Entrepreneurial Learning Initiative argued for the inclusion of experiential learning in the development of an entrepreneurial mindset (*Develop the future workforce with an entrepreneurial mindset*, 2023). AACSB in their 2020 iteration of standards for accreditation also began including a requirement of experiential learning (*Guiding principles and standards for business accreditation*, 2020).

Kolb's (1984) experiential learning theory is based on the premise that "learning, the creation of knowledge and meaning, occurs through the active extension and grounding of ideas and experiences in the external world and through internal reflection about the attributes of these experiences and ideas" (p. 53). When it comes to developing an entrepreneurial mindset and

skillset, researchers have consistently pointed towards Kolb's theory framed by the Experiential Learning Cycle (ELC) as a tool for codifying and explaining student learning and development (Carland & Carland, 2001; Daddi et al., 2020; Neck & Greene, 2011; Perry, 2011). A critical component of the ELC is reflection, which is the stage that builds off the learner's lived concrete experience and a proactive grappling with abstract conceptualization. It is at this point whereby critical reflection assists the learner in asking questions of their experience (behavioral) and current understanding (cognitive) with the intention of recognizing where there are gaps in the learner's personal perspective.

Upon observation and realization of these gaps (which are always there and only discoverable through critical reflection), learners can regroup and move into active experimentation. This is an iterative, cyclical process that can lead to the highest levels of learning and discernment and has been observed through an in-depth study of a business management class in New Zealand (Perry, 2011).

SIMULATION VERSUS STIMULATION: LEARNING OPPORTUNITIES

A recent review of entrepreneurial education empirical work (Carpenter & Wilson, 2022) indicated that entrepreneurial students benefit from experiential learning and/or practice-oriented pedagogy. While practice orientated education puts the responsibility on the student to construct their own learning experience, it typically does result in higher learning (Hahn et al., 2017). Hands on applied projects have been shown to be beneficial for entrepreneurial student's growth in entrepreneurial skill (Berbegal Mirabent et al., 2016; Politis, 2005), and embedding an entrepreneurial mindset because of their use of all three areas needed for entrepreneurial mindset development (Kuratko et al., 2021). One area that has been used for many years (Crookall, 1994) is that of having students do a simulation. Another is having students engage in starting and running a business or event during the school term (Sadek & Loutfy, 2013).

Simulations

Simulations have been adopted in business schools and specifically entrepreneurship programs for nearly 30 years (Crookall, 1994). The special issue of *Simulation & Gaming* in September of 1994 was dedicated exclusively to the concept of entrepreneurial education and serves as a seminal work for acknowledging and building upon the opportunities associated with simulations as an educative tool for framing entrepreneurial education. Simulations as an educational tool provides many benefits to the development of entrepreneurial mindset and skillset of learners (Bagheri et al., 2019). For all of the positive impacts associated with simulations, there are some identified challenges that should be noted. Those challenges include associated costs and expenses that can be (Chen et al., 2018) prohibitive, the learning curve associated with the program technology can be steep and the powerful computers that are needed to run the programs may not be equally accessible to everyone (Wawer et al., 2010). Finally, the fact that it is a simulation – not real – can impact the level of dedication students have in the results of their decisions. This concept is referred to as *fidelity* and this refers to the amount of realism associated with game play, whereby excessive realism can be problematic (Billhardt, 2004; Fox et al., 2018). Meaning, that students want to be challenged to an extent, but according

to Low et al. (1994), not overwhelmed with overly realistic game play and decisions to "minimize the danger of confounding factors" (p. 384). In the absence of actual lived experiences, simulations may be the next best option for the development of entrepreneur in an educational scenario.

Stimulations

In addition to simulations, to complement that learning, an effort to create real-life applied experiences (e.g., stimulation) could enhance learning in new, untapped ways. Just as a curriculum should have various courses for delivering essential content, various pedagogical approaches should be adopted to frame content and reach learners from various learning styles and dispositions (Cassidy, 2004). According to Cambridge University Press, stimulation refers to a sort of action that can cause someone to become *more* active, *more* enthusiastic, or to develop (Cambridge University Press, n.d.). This definition, in conjunction with the work of Forster-Holt (2021), is the perspective we take on regarding the impact of engaged learning. This would include things like running a booth at a flea market or convention center or even creating an online business as a part of a course. This latter example is important as recent examination of the effectiveness of entrepreneurial education noted that face to face projects were more impactful than those done through distance education (Carpenter & Wilson, 2022). Having a way to engage in actual real-life applied experiences through online venues is a newly emerging opportunity.

In the following section, an overview of a stimulation-based learning project facilitated through the KANU Marketplace, an interactive peer-to-peer web/app-based marketplace where students can build business ventures, will be presented.

FROM CONCEPTUAL TO ACTUAL: USING STIMULATION LEARNING TO SUPPORT MINDSET DEVELOPMENT

While the key focus of this paper is conceptual in nature, a case example of how experiential learning theory and pedagogical approaches can be leveraged to help develop an entrepreneurial skillset and, in turn, an entrepreneurial mindset could help clarify in a practical way what we have presented. An example from an Introduction to Entrepreneurship class facilitated in fall 2022 at a regional university will be presented. This class integrated a new educative tool that is designed to move the learner beyond simulation and into the realm of stimulation: KANU Marketplace. A realm that requires real time, real business decisions from ideation to development and from launch to execution. Enter KANU Marketplace as an example of this technology.

KANU Marketplace

There is a place for case studies to drive home theoretical points in hands-on real-world (-*esque*) conditions. There is also a place for hypothetical simulations to illuminate how real time decisions can lead to the next circumstance that an entrepreneur will have to navigate. Another pedogeological approach adopted in an Introduction to Entrepreneurship course was KANU,

designed to be "a safe and secure place where student ideas, services, and products earn money and invaluable business experience" (according to its website). KANU was founded in 2019 by two University of Rhode Island undergraduate students and is "the peer-to-peer campus marketplace fueled by entrepreneurship education." KANU has been designed to be "a revolutionary virtual business platform that systematically helps manage your [students'] way through the complexities of owning and operating a business venture." KANU is delivered in both a web-based, and an application-based (available on smart phone) service.

KANU was borne from the goal to introduce students from various disciplines to the process of starting a small-scale business. It serves as a resource so that students can set up their own successful side-hustle (as outside of a classroom experiences) or could be integrated into a classroom experience to support student learning. Forster-Holt (2021) captures the essence and conditions of a stimulation with the following statement: "a business owner will likely admit that a simulation won't keep them up at night, but running a real business will. Hence the stimulation" (p. 810). Forster-Holt was able to demonstrate the achievement of their goal (articulated first by Neck & Greene, 2011) to "fill a gap in active learning and help our students close the circuit between entrepreneurial thinking and acting" (p. 817). In addition to the learning outcomes of the course, Forster-Holt determined the success of their project through five additional outcomes (p. 818):

Table. 1.
KANU Marketplace Experience & Outcomes Achieved (Forster-Holt, 2021).

Outcome	Met Goal (Y/N)	Corroboration Data
A realistic student and semester-scaled size of venture	Y	"The professor, classroom mentors and the guest judges agreed that student ideas became more realistic when we took away the hypothetical nature of the assignment."
Connecting students to the innovation ecosystem on campus and in the state	Y	"This natural experiment helped us achieve one of our goals of getting students to the starting line of being able to avail themselves of the innovation ecosystem on campus."
Helping our students achieve their goals for the project	Y	Students predominantly reported their goals for their projects were earn income (38%) and have transferable experience (43%). "These answers suggested broad student support for the project."
Gaining broad support by the students for project	Y	"Spring semester 2019, when it was [a] hypothetical [project], student comments were positive, but overall lacked the energy of the subsequent semesters, and suggested that the project was just that – a project."
Campus engagement	Y	"We believe the controlled risk of our stimulation appeals to iGens [current generation of students]… the [stimulation project] seems to have imparted some life skills through a scalable, do-able venture."

This report increased confidence that using this "stimulation" approach of a controlled real-life process would both further a student's learning of entrepreneurial skills and have sufficient iterations to begin to trigger the use of an entrepreneurial mindset, if students were guided in the use of the entrepreneurial skills. This guided use could happen in a course and would benefit if it was a term long assignment. Next, is the integration of the KANU experiential learning project into an introductory entrepreneurship course.

INTEGRATING A STIMULATION PROJECT INTO INTRODUCTORY COURSE

The course chosen for an integration attempt was an introduction to entrepreneurship course and its outcomes. Course outcomes and associated assignments are essential to student learning. Integral to this experience was the learning outcomes focused on applying content and establishing a minimum viable product/service version of a start-up venture using the KANU platform. The course outcomes that were directly aligned with the KANU experience were as follows:

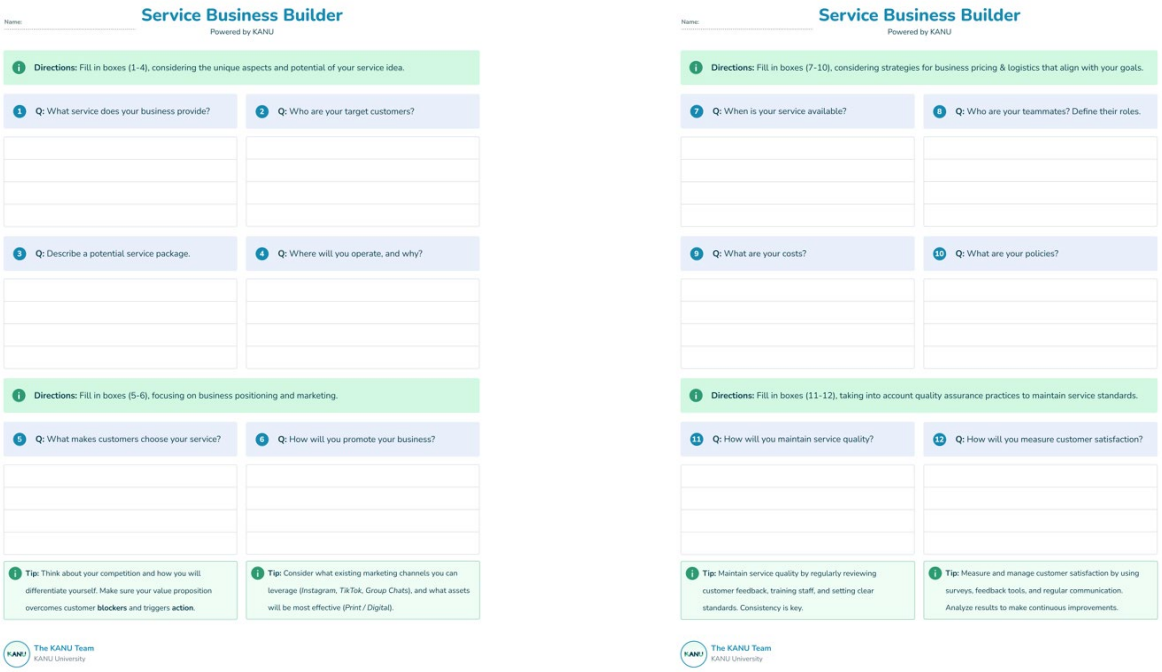
- Identify, describe, and apply techniques necessary to create and operate a new venture including idea development and testing, customer identification, marketing, selling, accounting, finance, and management framed by the business model canvas and executed through the ***KANU Marketplace***.

- Establish a start-up venture that identifies a human problem, develops a working solution, creates a named product or service (with product inventory/service offerings), markets the idea, generates sales and delivery of product/fulfillment of services, infers next steps from the results of their venture, and reflects on the impact the experience had as a developing entrepreneur.

Faculty teaching this course determined that at this introductory level, students would benefit from working through this experiential learning opportunity in teams. Best practices for the student teams indicate that using teams of 4 to 6 (Manegold et al., 2020) may be optimal. Thus, the KANU experience was to be facilitated in teams of around 6 students each. The course assignments that were directly aligned with the course outcomes and operationalized within KANU are as follows:

- Set-up the basic business information through KANU (name, about, ~2 products or ~2 services, geo location, FAQs, etc.);
- Complete *KANU Service/Product Business Builder* worksheet;
- Complete 4-Step "Go to Market" Plan (who, how reach, where are they, when, and price);
- Set & Monitor Sales Goals (revenue, conversion rate, customers, sales, etc.);
- Complete *KANU Ad-Lib Value Proposition* worksheet.

Figure 1.
Service Business Building Worksheet (KANU, 2022).
Download Worksheet



Name:

Service Business Builder

Powered by KANU

Directions: Fill in boxes (1-4), considering the unique aspects and potential of your service idea.

1. **Q:** What service does your business provide?
2. **Q:** Who are your target customers?
3. **Q:** Describe a potential service package.
4. **Q:** Where will you operate, and why?

Directions: Fill in boxes (5-6), focusing on business positioning and marketing.

5. **Q:** What makes customers choose your service?
6. **Q:** How will you promote your business?

Tip: Think about your competition and how you will differentiate yourself. Make sure your value proposition overcomes customer **blockers** and triggers **action**.

Tip: Consider what existing marketing channels you can leverage (*Instagram, TikTok, Group Chats*), and what assets will be most effective (*Print / Digital*).

The KANU Team
KANU University

Name:

Service Business Builder

Powered by KANU

Directions: Fill in boxes (7-10), considering strategies for business pricing & logistics that align with your goals.

7. **Q:** When is your service available?
8. **Q:** Who are your teammates? Define their roles.
9. **Q:** What are your costs?
10. **Q:** What are your policies?

Directions: Fill in boxes (11-12), taking into account quality assurance practices to maintain service standards.

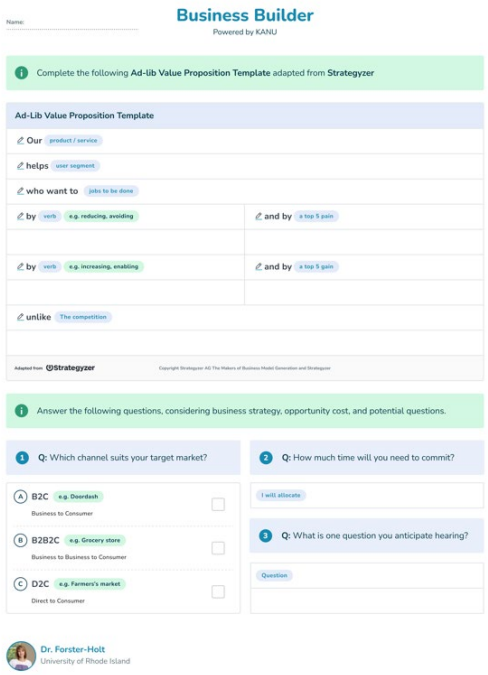
11. **Q:** How will you maintain service quality?
12. **Q:** How will you measure customer satisfaction?

Tip: Maintain service quality by regularly reviewing customer feedback, training staff, and setting clear standards. Consistency is key.

Tip: Measure and manage customer satisfaction by using surveys, feedback tools, and regular communication. Analyze results to make continuous improvements.

The KANU Team
KANU University

Figure 2.
Business Builder Worksheet (Forster-Holt, 2022).
Download Worksheet



IMPLEMENTATION CASE EXAMPLE: PILOT STUDY OF KANU

While this case is only an illustration of the idea of using an iterative experiential project to enable the development of an entrepreneurial mindset and not as case-based research, we are nonetheless sharing basic information about the case's context. Using this above work on how to include it in a freshman/sophomore course as a departure point, KANU was included as an integral component of a fall 2022 section of the introduction to entrepreneurship under discussion thus far. The course was open to all majors across the campus, but serves as an entry point course for the University's Entrepreneurship Minor and Bachelors (BS & BSBA) degree programs. This section had a maximum enrollment of 48 students and in fall 2022, and it was fully enrolled.

The following processes for this pilot study use of KANU were shared by the instructor of record (a tenure-track faculty member). As mentioned earlier, this course was fully enrolled in by 48 students which meant that 9 teams of around 6 members each were used. The organization was by major modules in the course and were conducted in a seated course on the main campus of the University.

Weeks 1 – 4

The semester started by introducing the students to the KANU project. A problem/ideation session was facilitated to find likeminded students from different backgrounds and to begin the team building process. Once students were put into teams a session on Tuckman's phases of team dynamics was facilitated (Tuckman, 1965). Following that a deeper dive session was presented using a problem, human-centric Design Thinking approach (*Get started with design thinking*, 2023) to search for headache problems (Cohen et al., 2020) that existed in the market (immediate vicinity of the University) where the student teams were focused. Additionally, each student completed the PICN Chart (a model that invites students to consider a **P**roblem, develop ~10 potential **I**deas/solutions, describe **C**ustomer characteristics, and develop up to three **N**ext questions they need to find answers to advance their idea). The key goal during this period is to connect as a team, identify a problem/opportunity, and begin to develop testable working solutions in the form of products or services to directly address the problem/opportunity.

Weeks 5 – 8

At this point in the semester student teams have begun to gel and have moved from the Forming phase through the Storming and Norming phases of team development (Tuckman, 1965). They have homed in on a viable business idea and have completed their Service/Product Business Building worksheets, developed a value proposition, identified and discussed the problem and their idea with prospective customers through customer interviewing, and set-up their basic business information in KANU. Teams began to refine their understanding of the problem they are solving and developed temporary working solutions in the form of Minimum Viable Products, Services, and Audiences. It is at this point in the semester that fall break started and this serves as a half-way point in the semester.

Weeks 9-12

At this stage, students began to develop inventories for their products or set established times for their service offerings. Although not a requirement, several students made investments on their own (ranging from $5.00 to $20.00 each), as they were aware that the opportunity existed to recoup their funds and possibly make a profit – indicative of a true entrepreneurial mindset. They spent on raw material and resources to create their respective products (e.g., boba tea, soap shield, specialty international candy boxes, branded and personalized sweatshirts, etc.) and services (e.g., jiujitsu coaching, car wash, etc.). A majority of the students developed a product versus offering a service, which was an interesting observation. Teams opened their KANU storefront and started to receive orders. Students would have to then accept the order request and agree upon a delivery/pick-up option. Indirect funds from an existing grant (held by the instructor) as well as administrative support in connection with a concurrent campus celebration of Global Entrepreneurship Week, allowed for a significant marketing campaign including the KANU project (as a component of the celebration). The campaign was thus deployed across the entire campus and included social media, printed posters (with QR codes), and campus emails to prospective customers. During this time students opened their stores and

began taking orders, balancing inventory levels, and accepting payments through the KANU platform (e.g., Venmo, PayPal, etc.).

Weeks 13-16

The final four weeks were dedicated to increasing sales, delivering orders, reaching revenue goals, and preparing students' final presentations on their business. The final presentation was a 4-minute pitch showcasing teams' business ideas and value proposition, sales strategy and sales numbers, revenues and profit margins, and reflective lessons learned from their launch. This provided the opportunity for each student group to learn from the others. A few significant insights were gained. Some teams were profitable on a single product, while other teams had multiple streams of revenue (via more than one product for sale). At least one team with multiple products had both winners and losers within the context of its entire product line. Most teams at least broke even, and a few were profitable. Interestingly, one team determined that it could and should begin to sell marketing and promotion services to the other teams. At first blush, the activity could be regarded as a minor nuance. Yet, from a macro-view this behavior was an indices of at least the beginnings of a greater entrepreneurial ecosystem being formed (similar to when the establishment of one business leads to many more forming as they all in some way support one another and create an economic infrastructure that leads to even more development). It is evident that the stimulation aspect of the experience had some efficacy based on student reflections and the observed enthusiasm from their engagement. Finally, it is well known that mere ideas, even great ones, cannot be successful without follow-through and implementation. In that all teams concerned actually persevered, keeping in mind that this was an introductory-level course, and made it to their respective marketplaces, this was indicative of an entrepreneurial mindset having been realized in each of the participants.

Instructor's Reflections from Stimulation Learning with KANU: Rose, Bud, & Thorn

The faculty member reported that this first-time experience was challenging, rewarding, and motivating. Observations from his experience will be captured using a similar process often taught to our students as they reflect on an experience: the Rose, Bud & Thorn series of reflections. The Rose includes that which was observed and positive. The Bud focus enables reflections focused on that which demonstrated great potential for future opportunity. The last reflection, the Thorn, considered the aspects of the experience that might have been improved and could be improved in the next iteration.

Rose

The beautiful part of the experience was watching the students move through the decisions that go into developing a viable business with real offerings (product or service). The instructor of record noticed that the students shifted from going through the motions and playing it safe to making decisions that carried with them real-world implications (including financial consequences and opportunities). The customer interviews they facilitated had real repercussions. If students listened well enough, they could develop a solution to real problem being experienced by their potential customers. If they made wise purchasing decisions on

supplies and resources and established a viable price point, they could increase their profit margin. Students consistently noted their awareness of the realness of the decisions they were making. These students were launching live businesses, with real product and service offerings, and a full-campus marketing campaign and they wanted to ensure their virtual storefronts were well presented. As the professor it felt like a switch was flipped. It was evident that students were thinking about entrepreneurship in ways they had not (or might not have) without the stimulation learning experience with KANU.

Bud

As far as experiential learning opportunities go, the untapped potential in this stimulation-based learning experience remains. As this was the first time navigating these waters, it was clear that the more the program and platform is used the more impactful the experience can become for future student participants. When using the KANU platform again (planned for fall 2023), the faculty member will start with a more thorough tutorial of how to utilize the platform. For example, before projects are launched the projects, the platform will be introduced live in front of the students, and then all concerned will collaboratively build a business the KANU way together. Students will collectively set-up a business storefront and make real time decisions in the app (together) so they can see how it works in practice. Additionally, many of the students noted that the experience empowered and motivated them to see their idea (solution) turn into a tangible product (or available service) and then that there were people out there who would purchase their product (or service). This process has the ability to "…awaken a stranger inside of you…" (Antoine de Saint-Exupéry). Meaning, that when a student goes through the process of launching even a small-scale startup, it can help demystify the second, third, fourth, etc., iterations of the startup process. It is this level of stimulation-based learning that is essential for preparation. Successful ventures have become so due to iteration compounded. "Iterate. Iterate. Iterate," one student said. KANU helps put students in a place to be challenged, overcome those challenges, and then use the lessons learned to improve the next iteration of their venture. The experience connects with the students' entrepreneurial skills development and ultimately their entrepreneurial mindset development.

Thorn

There is much room for improvement moving forward. The KANU team (HQ) is working on improvements. A couple of challenges that were experienced were minor, but still influenced the experience. For example, when QR codes or hyperlinks were used to connect customers to the students' store fronts within KANU to purchase products and services, customers would have to establish a username (email) and password to check out. There was not a way to purchase the items without setting up an account and logging in. This is a minor issue, and KANU's management team is already working to address it, but it was a small thorn in the process for the students who set up their storefronts. Most of the challenges were attributed to this being the first time utilizing educational activity. The KANU experience will be facilitated again in fall 2023.

CONCLUSION

We began this research by exploring how an entrepreneurial mindset can be developed and become so integrated with an entrepreneur that it moves from conscious use to unconscious use. An examination of the mindset literature found that this happens with repeated use of the mindset in certain conditions, such that when those conditions occur, they may spark a person to choose to use that mindset. For an entrepreneurial mindset, the conditions are those of recognizing an opportunity. It is no wonder then, that entrepreneurial education has found experiential exercises so valuable in preparing people to become entrepreneurs. While several types of experiential exercises were found, the ones that were the most likely to allow for iterations (whether based on success or failure) were those of simulations and performing the actions of an entrepreneur. In the case of the latter, existing research found that students flourished more when they operated from a "safe" place that was not completely duplicating the complexities and trials found in real life but did, for example, have some similarities such as tight deadlines and some risk of failure. Respecting this last predilection, an experiential learning exercise that naturally allowed for iterations was employed to help embed the entrepreneurial mindset in students. While a single term is not sufficient time to ensure the embedding of a mindset, it does provide iterative opportunities to use a mindset and begin the process.

It is important to note and presumably not surprising, discussing a theory – in theory – is not as productive or illuminating as discussing a theory post-application or experience. Meaning that theory, models, concepts, and content take on a new, more useful dynamic only after learners have had the opportunity to apply and test accompanying assumptions. Additionally, without the hands-on application component educators cannot fully prepare the next generation of entrepreneurs. Rather, at best, the next generation of *theoretical* entrepreneurs would be the result of teachings *sans* application. Braiding the threads of entrepreneurial mindset, entrepreneurial skillset, and experiential learning theory serves as symbol for demonstrating the importance of integrating the three with the purpose of preparing real-world, entrepreneurs. Going back to our initial equation:

$$ELT + ES = EM$$

In this, the goal is to balance the equation, and entrepreneurial mindset can be achieved through the applied experiential learning efforts that are brought to life in the application of entrepreneurial skills. Entrepreneurial skills are necessarily developed through applied experiential learning. The best way to develop this disposition and toolbox is to put learners in real-world situations that require the application of the mindset and skillset that have been seen in successful entrepreneurs (Perry & Black, 2022). Simulations are useful due to their ability to enable students to recover from failure, pivot what they are doing and trying again. However, new opportunities arise and using new aspects such as a controlled real-life real time experience can further that learning.

From the above reflections, it is possible to include realistic simulated experiences of sufficient reality and fidelity to "stimulate" interest and buy-in by students. KANU is one such platform that allows students the fidelity and yet the "safe" space and conditions to create opportunities for learning instead of being overwhelming and stifling learning. Such exercises, when deployed across a full academic term provide iterative sessions in using entrepreneurial skills and thus could help students in developing an entrepreneurial mindset. Given that entrepreneurial mindsets require repeated use of entrepreneurial skills to become embedded in an individual's identity, using experiential exercises including ones that can be done whether in person or online is a great way of accomplishing this task across a whole program. The KANU platform (or others like it) could be used early-on in a program using teams and move to individual use later during one or more upper-level courses. Real-world applied conditions test entrepreneurs in ways that forge their mind and skills, so that when they pivot to new initiatives, they will be more tuned and prepared for the next challenge. Providing this for students remains a work in progress.

REFERENCES

Alvarez, S. A., Barney, J. B., & Anderson, P. (2013). Forming and exploiting opportunities: The implications of discovery and creation processes for entrepreneurial and organizational research. *Organization Science*, *24*(1), 301-317.

Badaracco, J. L. (1998). The discipline of building character. *Harvard Business Review*, *76*, 114-125.

Bagheri, A., Alinezhad, A., & Sajadi, S. M. (2019). Gamification in higher education: Implications to improve entrepreneurship education. European Conference on Games Based Learning, Odense, Denmark.

Baron, R. A. (2006). Opportunity recognition as pattern recognition: How entrepreneurs "connect the dots" to identify new business opportunities. *Academy of Management Perspectives*, *20*(1), 104-119.

Berbegal Mirabent, J., Gil Doménech, M. D., & Alegre, I. (2016). Improving business plan development and entrepreneurial skills through a project-based activity. *Journal of Entrepreneurship Education*, *19*(2), 89-97.

Billhardt, B. (2004). The promise of online simulations. *Chief Learning Officer*, *3*(2), 38-41.

Boisot, M., & MacMillan, I. C. (2004). Crossing epistemological boundaries: Managerial and entrepreneurial approaches to knowledge management. *Long Range Planning*, *37*(6), 505-524.

Cambridge University Press. (n.d.). Stimulation. In dictionary.cambridge.org. Retrieved June 19, 2023, from https://dictionary.cambridge.org/us/dictionary/english/stimulation

Carland, J. C., & Carland, J. W. (2001). Entrepreneurship education: An integrated approach using an experiential learning paradigm. In R. H. Brockhaus, G. E. Hills, H. Klandt, & H. P. Welsch (Eds.), *Entrepreneurship education: A global view* (pp. 94-103). Ashgate.

Carpenter, A., & Wilson, R. (2022). A systematic review looking at the effect of entrepreneurship education on higher education student. *The International Journal of Management Education*, *20*(2), 100541.

Cassidy, S. (2004). Learning Styles: An overview of theories, models, and measures. *Educational Psychology*, *24*(4), 419-444. https://doi.org/10.1080/0144341042000228834

Chang, J., & Rieple, A. (2013). Assessing students' entrepreneurial skills development in live projects. *Journal of Small Business and Enterprise Development*, *20*(1), 225-241. https://doi.org/https://doi.org/10.1108/14626001311298501

Chen, C.-C., Huang, C., Gribbins, M., & Swan, K. (2018). Gamify Online Courses with Tools Built into Your Learning Management System (LMS) to Enhance Self-Determined and Active Learning. *Online Learning*, *22*(3), 41-54.

Cohen, D., Pool, G., & Neck, H. (2020). *The IDEATE method: Identifying high-potential entrepreneurial ideas* (1st ed.). Sage Publications.

A "critical" reflection framework. (2007). State Government of Victoria, Australia. https://www.education.vic.gov.au/Documents/childhood/professionals/support/reffram.pdf

Crookall, D. (1994). Editorial: Entrepreneurship Education. *Simulation & Gaming*, *25*(3), 333-334. https://doi.org/10.1177/1046878194253001

Daddi, D., Boffo, V., Buragohain, D., & Iyaomolere, T. C. (2020). Programmes and methods for developing entrepreneurial skills in higher education. *Andragoške Studije*(1), 101-123.

Develop the future workforce with an entrepreneurial mindset. (2023). The Entrepreneurial Learning Initiative, Inc. https://elimindset.com/entrepreneurship-programs/higher-education/

Dobni, D., Ritchie, J. B., & Zerbe, W. (2000). Organizational values: The inside view of service productivity. *Journal of Business Research*, *47*(2), 91-107.

Dweck, C. S. (2006). *Mindset: The new psychology of success*. Random house.

Dweck, C. S., Chiu, C.-y., & Hong, Y.-y. (1995). Implicit theories and their role in judgments and reactions: A word from two perspectives. *Psychological Inquiry*, *6*(4), 267-285.

Forster-Holt, N. (2021). Stimulation versus simulation: The student side hustle as a learning innovation. *Entrepreneurship Education and Pedagogy*, *4*(4), 808-829.

Fox, J., Pittaway, L., & Uzuegbunam, I. (2018). Simulations in entrepreneurship education: Serious games and learning through play. *Entrepreneurship Education and Pedagogy*, *1*(1), 61-89.

Gasparini, A. A. (2015, February). Perspective and use of empathy in design thinking. Advancements in Computer-Human Interaction, ACHI 2015, Lisbon, Portugal.

Get started with design thinking. (2023). Hasso Plattner Institute of Design at Stanford University. https://dschool.stanford.edu/resources/getting-started-with-design-thinking#:~:text=Design%20thinking%20is%20a%20methodology,can%20run%20with%20your%20students

Greenhaus, J. H., & Powell, G. N. (2003). When work and family collide: Deciding between competing role demands. *Organizational Behavior and Human Decision Processes*, *90*(2), 291-303. https://doi.org/https://doi.org/10.1016/S0749-5978(02)00519-8

Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review*, *102*(1), 4.

Gruber, M., MacMillan, I. C., & Thompson, J. D. (2013). Escaping the prior knowledge corridor: What shapes the number and variety of market opportunities identified before market entry of technology start-ups? *Organization Science*, *24*(1), 280-300.

Guiding principles and standards for business accreditation. (2020, July 28). AACSB International. https://aacsb.edu/-/media/aacsb/docs/accreditation/business/standards-and-tables/2020%20business%20accreditation%20standards.ashx?la=en&hash=E4B7D8348A6860B3AA9804567F02C68960281DA2

Hahn, D., Minola, T., Van Gils, A., & Huybrechts, J. (2017). Entrepreneurial education and learning at universities: Exploring multilevel contingencies. *Entrepreneurship & Regional Development*, *29*(9-10), 945-974.

Haynie, J. M., Shepherd, D., Mosakowski, E., & Earley, P. C. (2010). A situated metacognitive model of the entrepreneurial mindset. *Journal of Business Venturing*, *25*(2), 217-229.

Haynie, M., & Shepherd, D. A. (2009). A measure of adaptive cognition for entrepreneurship research. *Entrepreneurship Theory and Practice*, *33*(3), 695-714.

Hayter, C. S., Fischer, B., & Rasmussen, E. (2021). Becoming an academic entrepreneur: How scientists develop an entrepreneurial identity. *Small Business Economics*, 1-19.

Hmieleski, K. M., & Baron, R. A. (2009). Entrepreneurs' optimism and new venture performance: A social cognitive perspective. *Academy of Management Journal*, *52*(3), 473-488.

Ireland, R. D., Hitt, M. A., & Sirmon, D. G. (2003). A model of strategic entrepreneurship: The construct and its dimensions. *Journal of Management*, *29*(6), 963-989.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. FT press.

Köppen, E., & Meinel, C. (2015). Empathy via design thinking: creation of sense and knowledge. *Design thinking research: Building innovators*, 15-28.

Kuratko, D. F., Fisher, G., & Audretsch, D. B. (2021). Unraveling the entrepreneurial mindset. *Small Business Economics*, *57*, 1681-1691.

Low, M., Venkataraman, S., & Srivatsan, V. (1994). Developing an entrepreneurship game for teaching and research. *Simulation & Gaming*, *25*(3), 383-401.

Lyons, T. S., & Lyons, J. S. (2002). Assessing entrepreneurship skills: The key to effective enterprise development planning. 44th Annual Conference of the Association of Collegiate Schools of Planning., Baltimore, Maryland.

Manegold, J. G., Schaffer, B. S., Arseneau, E., & Kauanui, S. K. (2020). Social innovation and poster presentations: Service-learning for business students in a team-based course. *Journal of Education for Business*, *95*(7), 469-475.

Mitchell, R. K., Busenitz, L., Lant, T., McDougall, P. P., Morse, E. A., & Smith, J. B. (2002). Toward a theory of entrepreneurial cognition: Rethinking the people side of entrepreneurship research. *Entrepreneurship Theory and Practice*, *27*(2), 93-104.

Morris, M. H., Kuratko, D. F., Schindehutte, M., & Spivack, A. J. (2012). Framing the entrepreneurial experience. *Entrepreneurship Theory and Practice*, *36*(1), 11-40.

Naumann, C. (2017). Entrepreneurial mindset: A synthetic literature review. *Entrepreneurial Business and Economics Review*, *5*(3), 149-172.

Neck, H. M., & Greene, P. G. (2011). Entrepreneurship education: known worlds and new frontiers. *Journal of Small Business Management*, *49*(1), 55-70.

O'Neil, I., Ucbasaran, D., & York, J. G. (2022). The evolution of founder identity as an authenticity work process. *Journal of Business Venturing*, *37*(1), 106031.

Perry, L., & Black, J. B. (2022, March 24-25). From abstraction to applied experimentation: Entrepreneurial education through a real-world, real impact service-learning project. Appalachian Research in Business Symposium, Richmond, Kentucky.

Perry, L. G. (2011). *A Naturalistic Inquiry of Service-Learning in New Zealand University Classrooms: Determining and Illuminating the Impact on Student Engagement* [Unpublished doctoral dissertation]. University of Canterbury. https://ir.canterbury.ac.nz/bitstream/handle/10092/5991/Perry_PhD_thesis.pdf;sequence=1

Phillips, N., Tracey, P., & Karra, N. (2013). Building entrepreneurial tie portfolios through strategic homophily: The role of narrative identity work in venture creation and early growth. *Journal of Business Venturing*, *28*(1), 134-150.

Politis, D. (2005). The process of entrepreneurial learning: A conceptual framework. *Entrepreneurship Theory and Practice*, *29*(4), 399-424.

Razzouk, R., & Shute, V. (2012). What is design thinking and why is it important? *Review of Educational Research*, *82*(3), 330-348.

Sadek, T., & Loutfy, R. (2013, September 19-20). Experiential entrepreneurship education in Canada-New venture creation while earning a masters degree. 8th European Conference on Innovation and Entrepreneurship (ECIE 2013), Brussels, Belgium.

Sarasvathy, S. D. (2008). Effectuation: Elements of entrepreneurial expertise. In *Effectuation*. Edward Elgar Publishing.

Schumpeter, J. A. (1942). *Capitalism, socialism, and democracy* (First ed.). Harper and Brothers.

Shepherd, D. A., & DeTienne, D. R. (2005). Prior knowledge, potential financial reward, and opportunity identification. *Entrepreneurship Theory and Practice*, *29*(1), 91-112.

Spencer, H. (1855). *The principles of psychology*. Longman, Brown, Green, and Longmans. https://doi.org/doi:10.1037/14065-000

Sull, D. N., & Houlder, D. (2005). Do your commitments match your convictions. *Harvard Business Review*, *83*(1), 82-91.

Tang, J., Kacmar, K. M. M., & Busenitz, L. (2012). Entrepreneurial alertness in the pursuit of new opportunities. *Journal of Business Venturing*, *27*(1), 77-94.

Tuckman, B. W. (1965). Developmental sequence in small groups. *Psychological Bulletin*, *63*(6), 384.

Wawer, M., Milosz, M., Muryjas, P., & Rzemieniak, M. (2010). Business simulation games in forming of students' entrepreneurship. *International Journal of Euro-Mediterranean Studies*, *3*(1), 49-71.

Zyphur, M. J. (2009). When mindsets collide: Switching analytical mindsets to advance organization science. *Academy of Management Review*, *34*(4), 677-688.

BEYOND THE TIP OF THE ICEBERG: MEASURING EFFICACY OF ENTREPRENEURSHIP EDUCATION IN OUTCOMES BEYOND START-UPS

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ABSTRACT

In this paper, we examine measures of entrepreneurship education efficacy. Currently, entrepreneurship education program design is often driven by a desire to perform well in ranking systems. Ranking systems focus on the number of start-ups and program inputs such as the number of courses. To better understand entrepreneurship education efficacy, educators at three universities have worked to assess the effectiveness of their programs. Our research team has taken a competencies-based approach and employed the theory of change logic model to link entrepreneurship education efficacy to both generalizable entrepreneurial competencies and early career outcomes. We propose that entrepreneurship educators should measure outputs, outcomes, and impact using this theory of change lens. Metrics associated with these areas are suggested and are linked with skills beneficial to graduates whether traditionally employed or in a start-up. The paper innovatively integrates the theory of change to propose measures in five core areas important for entrepreneurship program graduates. The discussion is intended to broaden our view of how we assess entrepreneurship education and encourage work regarding the goals of entrepreneurship education, which is overdue and will strengthen all our programs.

INTRODUCTION

The impact of entrepreneurship has been widely recognized. This impact is seen at multiple levels: personal achievement (Bolzani & Foo, 2018; Stewart & Roth, 2001), altering entire industries (Johnson, Lusch, & Schmidtz, 2020; Schumpeter, 1942), economic growth (Urbano, Aparicio, & Audretsch, 2019; McClelland, 1961), and even as a hope to cure global issues such as climate change (Dean & McMullen, 2007). This potential for positive impact has attracted efforts from both academics and university systems, which has led to the rapid growth of entrepreneurship research and entrepreneurship education programs. Generally, entrepreneurship education intends to enable students and graduates to apply entrepreneurial

skills and knowledge in a wide array of settings. However, entrepreneurial skills and knowledge are seldom the outcomes measured by research into entrepreneurship programs or used in practitioner university ranking systems, both of which inform the design of new entrepreneurship education programs. Instead, the focus is frequently on start-ups - research on entrepreneurship education examines the 'intention to start a new venture' (e.g., meta-analysis on EE by Martínez-Gregorio, Badenes-Ribera, & Oliver, 2021) and ranking systems on 'the number of start-ups' (e.g., Choi & Markham, 2019) for recent graduates. Yet, launching a new venture is just the tip of the iceberg; entrepreneurship education must account for outcomes beyond venture starts. The facts are that *less than 10%* of students pursue a start-up after graduation (NACE, 2021). Additionally, entrepreneurial skills and knowledge provide a much wider benefit applicable both within and beyond new venture creation. In this paper, we make a case to broaden the current focus from measuring start-ups and lobby for appropriate outcomes metrics to assess the efficacy of entrepreneurship education that consider the broader range of benefits to our graduates and their careers.

Prior research has acknowledged that universities need to do a more effective job of defining and measuring entrepreneurship education outcomes that relate to the needs of students (Koys, Thompson, Martin, & Lewis, 2019). This is especially true when we consider the context of our students' early careers. In theory, entrepreneurship researchers aiming to better understand the entrepreneurial process and exploit opportunities should be well-positioned to develop entrepreneurship pedagogy. Nevertheless, entrepreneurship education design is often driven more by replicating existing programs or completing items measured by prominent raking systems. This has led to the proliferation of common pedagogical practices with a limited understanding of educational outcomes (e.g. Sarooghi, Sunny, Hornsby, & Fernhaber, 2019). This is consistent with many disciplines as there is a drive to imitate the 'best' in the global ranking game (Kauppi, 2018). As Liguori et al. (2018) describe: "we outpaced our own understanding of what to teach, how to teach it, and how entrepreneurial learning is best measured" (p. 5). Significant progress has been made in individual measures and in documenting successful interventions, but as other scholars have asserted (e.g. D'Souza, Bement, & Struckell, 2022; Edelman, Manolova, & Brush, 2008; Yi & Duval-Couetil, 2021), entrepreneurship educators need to do a better job meeting the needs of students. It is challenging to measure the efficacy of entrepreneurship education broadly and compare individual programs until we as a discipline reach a consensus relating to ideal outcome metrics.

To better understand entrepreneurship education efficacy, this author team (comprised of entrepreneurship educators at three universities) has spent the past three years assessing education effectiveness to identify best practices to share across their broader regional academic alliance (the alliance contains 10 universities and over 160,000 students). Our research team has taken a competencies-based approach to defining the purpose of entrepreneurship education and employed the theory of change logic model as a framework to link efficacy to both generalizable entrepreneurial competencies and early career outcomes that capture a wide range of alumni experiences. We have examined the structure of programs across our academic alliance, which offers over 170 entrepreneurship courses. We found challenges in comparing the programs as there were differences in educational content, program structure, and emphasis on curricular/extra-

curricular initiatives. Considerable time was spent understanding the core entrepreneurship skills and knowledge each institution intended to impart.

While academic researchers often examine how entrepreneurship education influences student mindset outcomes, such as entrepreneurial intent or entrepreneurial orientation (Nabi, Linan, Fayolle, Krueger, & Walmsley, 2017), practitioners have focused on ranking lists (e.g. U.S. News). University-wide and discipline-specific ranking lists have become a global phenomenon and have a significant influence on the decision-making process, strategy, and perception of programs (Rybiński & Wodecki, 2022) and play a significant role in the shaping of programs (Fowles, Frederickson, & Koppell, 2016). Our research team found a lack of consistent entrepreneurship education efficacy assessment and a significant disconnect between best practices in performance measurement and how programs are ranked.

The contributions of this paper are threefold. First, we propose a strategy and core set of entrepreneurship education outcomes to assess program efficacy, based on an established logic model. Second, these outcomes are operationalized with quantifiable metrics. Lastly, the discussion is intended to broaden our view of how professors assess entrepreneurship education outcome metrics and encourage conversation because we believe that a dialogue about the goals of entrepreneurship education is overdue and will strengthen all our programs.

The paper proceeds as follows. First, we review the current state of entrepreneurship education and curricular offerings within the author's academic alliance as an example. Next, we discuss the theory of change model and how this framework highlights the types of metrics used in efficacy evaluations. Third, the current practitioner evaluation metrics used to rank university programs are reviewed, and explain how these metrics are poorly linked with both entrepreneurship research and pedagogy. We then propose new metrics for entrepreneurship education evaluation, which are linked with core entrepreneurship research principles. We conclude with a review of contributions and future work in this area. This paper aims to begin a conversation about the learning goals of undergraduate entrepreneurship education and propose a pathway to efficacy measurement that aligns with those goals.

BACKGROUND AND THEORETICAL FOUNDATIONS

Entrepreneurship education

There has been enormous growth and investment in entrepreneurship education at all levels of education (Morris, Kuratko, & Cornwall, 2013; O'Connor, 2013; Walter & Block, 2016). The rapid adoption of entrepreneurship education is illustrated by the number of undergraduate programs in the US more than doubled in fourteen years (Honig, 2004; Liguori et al., 2018). entrepreneurship education is a topic that is relevant to academics and practitioners because excellent pedagogy is based on validated research and entrepreneurship research has focused on practical ways to boost the success of entrepreneurs. While entrepreneurship as a discipline once considered new venture creation as a defining requirement (Gartner, 1989), the current, broader definition of entrepreneurship involves identifying and exploiting opportunities (Shane & Venkataraman, 2000) within a variety of contexts. This focus continues to be a driver of entrepreneurship research as "It seems likely that opportunities will continue as an important

concept in the field of entrepreneurship for some time" (Alvarez & Barney, 2020, pg. 300). Research has not conclusively determined the effectiveness of entrepreneurship education in part due to limitations in research design (Yi & Duval-Couetil, 2021), and in part due to fragmentation in defining effectiveness within the field (Schuhmacher & Thieu, 2022).

There has been a range of researchers advocating a competency-based approach to entrepreneurship education (Bacigalupo, Kampylis, Punie, & Van den Brande, 2016; Mawson, Casulli, & Simmons, 2022; Morris, Webb, Fu, & Singhal, 2013), or emphasizing creative self-efficacy (Tantawy et al., 2021) and human capital development (Cualheta & Abbad, 2022; Martin, McNally, & Kay, 2013), but outcomes, such as these, have been under-researched (Cualheta & Abbad, 2022; Nabi et al., 2017). Instead, the existing empirical research related to EE effectiveness commonly focuses on intentions to start a new venture (Bae, Qian, Miao, & Fiet, 2014; Nabi et al., 2017). While venture creation may be one of the long-term outcomes of entrepreneurship education, the full spectrum of what graduates do with their education should be taken into consideration when designing programs and measuring their efficacy.

The emphasis on entrepreneurial intent and start-ups in entrepreneurship education research does not capture the experience of most entrepreneurship graduates for two reasons. First, it does not reflect the reality of most recent graduates. The National Association of Colleges and Employers (NACE) conducts the First Destination Survey of the graduating classes for nearly 350 institutions within the U.S. which accounts for 28% of all bachelor's degree graduates. NACE undergraduate data shows only 7% of entrepreneurship education graduates pursue venture creation as their primary endeavor (NACE, 2021), in comparison 76% are traditionally employed, 10% continue their education, and 9% are seeking employment.

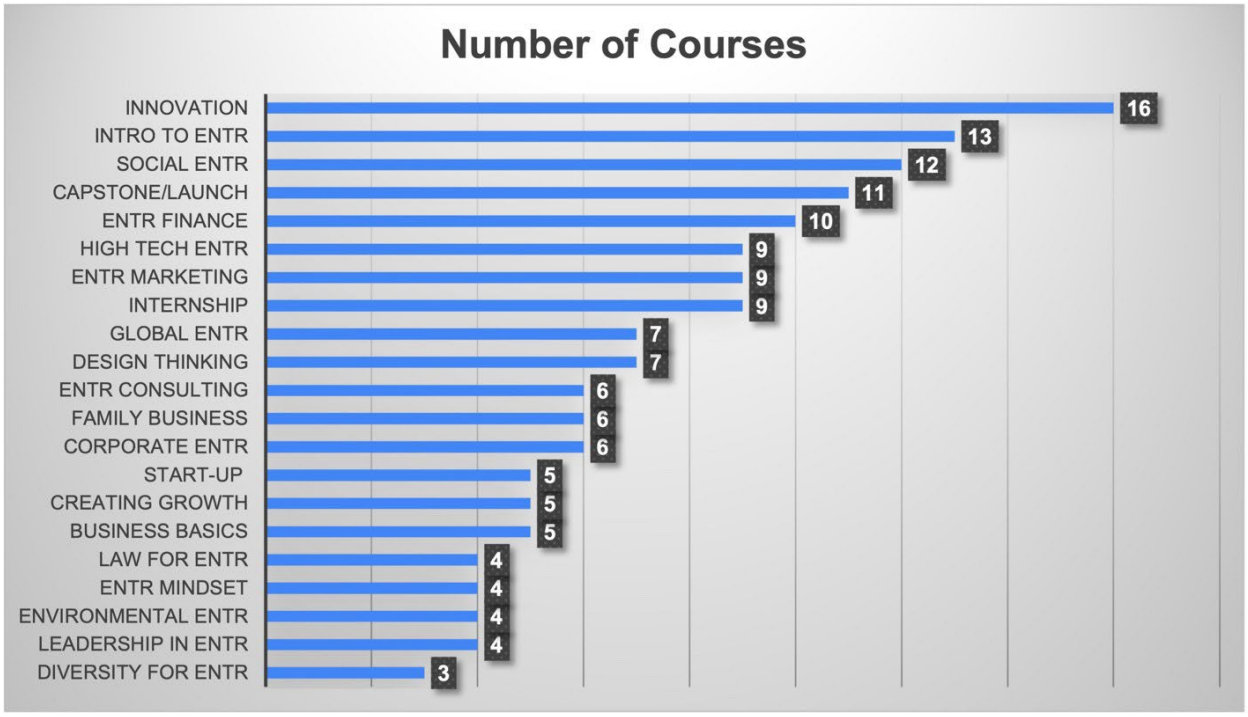
Second, launching a venture after graduation may not be in the best interest of students. Research has shown that entrepreneurship education can improve students' skills in opportunity identification and evaluation while lowering short-term intentions of new venture creation (DeTienne & Chandler, 2004). To best position EE graduates for success, it is appropriate to instill entrepreneurial skills that will lead to a long, productive career. Most entrepreneurs start firms in an industry they have prior work experience and new graduates lack this experience. The Kauffmann Foundation's research on early-stage entrepreneurship indicates that the rate of new entrepreneurs is the highest among the 45–54-year age group and the lowest among the 20-34 year age group (Fairlie, 2022). Together, this information illustrates that using venture starts as the primary outcome measure on which to evaluate entrepreneurship education programs fails to include the experiences of the overwhelming majority of graduates.

An analysis of entrepreneurship education programs within our academic alliance showed that eleven of twelve schools have an entrepreneurship major or concentration, ten offer a minor, and three have certificate programs. These programs emphasize innovation, creativity, opportunity exploration, and an experiential-action-oriented style of education. There are significant variations with some programs specializing in an area (e.g., social or technology entrepreneurship). While a full qualitative assessment of these offerings is outside the scope of this paper, a summary of course offerings is shown in Figure 1.

Entrepreneurship education is a benefit to students as they transition into work. Increasingly, employers are attracted to graduates' knowledge of innovation processes and have

high expectations for the impact entrepreneurship program graduates can have on their organizations (Killingberg, Kubberød, & Pettersen, 2022). Mawson et al. (2022) assert that an entrepreneurial mindset can be distilled into "a set of learnable cognitive and emotional competencies conducive to developing and enacting behaviors to support value creation activity" and this mindset would be valuable in a range of contexts. Based on the venture launch base rates within the NACE data, corporate entrepreneurship (using entrepreneurship skills within an existing organization and sometimes referred to as intrapreneurship) is a more likely path for our graduates to engage in value-creation activity and yet is underrepresented in the course offerings within our academic alliance. Students engaging in corporate entrepreneurship have distinct outcome expectations from those engaging in entrepreneurship (Ilonen & Hytönen, 2022) that should be captured within comparative performance assessments of entrepreneurship education.

Figure 1
Entrepreneurship Education Course Breakdown Within Academic Alliance

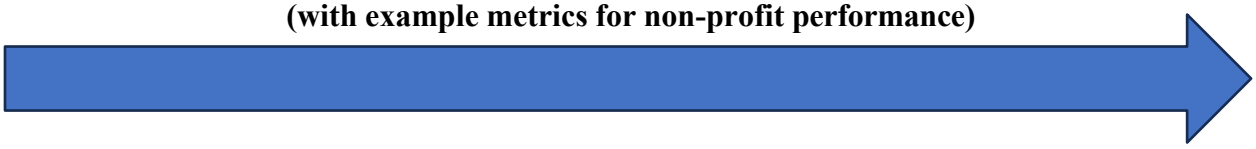


Measurements of efficacy using the logic model

The authors believe that the work on performance measurement from the non-profit field is valuable for exploring a more holistic look at the performance of entrepreneurship education outcomes beyond venture creation. The five-stage theory of change model (outlined in Figure 2) has become a key performance measurement tool (Ebrahim & Rangan, 2014; Lynch-Cerullo & Cooney, 2011), both because the process of developing the model clarifies the understanding of how the impact is created and because a theory of change logic model provides a

structure in which various aspects of performance can be evaluated. Leveraging a logic model to map the connections between inputs, activities, outputs, outcomes, and impact (Epstein & Yuthas, 2014) within a curriculum can provide much-needed clarity on the logic behind entrepreneurship education and the role educators wish it would play within the career readiness and trajectories of their students. The first stage of the model for input measurement provides the ability to understand the resources necessary to achieve the desired change and the needed investment in an intervention— in the case of educational programs this typically relates to the number of students, faculty, and/or funding available for a program. Activity metrics assess the action for implementation—for entrepreneurship education, examples of this are the number and types of courses taught, the number of competitions hosted, and/or the number of scholarships awarded. Output measurement assesses what has been concretely done—in entrepreneurship education, examples would include the number of students completing the program, the number of businesses developed, and/or the number of students mentored. Outcome and Impact measurements must occur after graduation because they seek to measure lasting changes in the lives of individuals (outcomes) and communities (impacts) (Ebrahim & Rangan, 2014)

Figure 2
Theory of change logic model
(with example metrics for non-profit performance)



Inputs	Activities	Outputs	Outcomes	Impact
• Funds • Equipment and supplies • Expertise	• Basic needs delivery • Service delivery • Infrastructure built	*Results: Immediate* • People fed, housed, or treated • People trained or educated • Roads built, markets created	*Results: Medium and long-term* • Improved quality of life, health, educational attainment • Increased incomes *Measured for individuals*	*Results: effects on root causes, sustained significant change* • Sustained drop in poverty • Improvements in human development indicators *Measured in terms of communities, populations, ecosystems*

Adapted from Ebrahim & Rangin, 2014, p 121

A challenge in performance measurement is determining which metrics to track and how to effectively establish systems to track them (Carman & Fredericks, 2010). Metric selection is a

key part of ensuring the desired efficacy is achieved because performance data influence strategic decision-making, program design, and implementation (McDavid, Huse, & Hawthorn, 2018), selecting the wrong metrics to track could inadvertently shift the focus of future decisions. It is much easier, and more common, to evaluate performance in the earlier stages of the theory of change—Inputs, Activities, Outputs—than it is to measure the later stages—Outcomes and Impacts— because determining meaningful outcome metrics is difficult (Lynch-Cerullo & Cooney, 2011) and the time lag makes data collection more difficult. In the case of entrepreneurship education efficacy, it would require assessing impacts on alumni instead of current students.

Examining the existing research on entrepreneurship education pedagogy through the theory of change lens, we see that most efforts are focused on the activities within the classroom and their direct outputs. With regards to measuring outcomes, Yi and Duval-Couteil's (2021) meta-analysis on entrepreneurship education efficacy highlighted significant gaps in our understanding of outcomes because of poor research design. Specifically, they highlight that in many studies there has not been sufficient time between the treatment and data collection to fully understand the impact or outcomes of entrepreneurship education. Further, most studies had a validity issue because they focused solely on education outcomes without employing either a pre/post-test model or a non- entrepreneurship education control group. They argue that researchers need to begin with their intended end goal and work backward to determine metrics that align with those goals. Because we, as a discipline-specific field, have not coalesced on clear goals of entrepreneurship education it makes it hard to determine the ideal metrics related to these goals.

Current outcome measurement practices

The business of ranking university education programs has become a major driver of the institutionalization of practices across disciplines (Fowles et al., 2016). These systems have been studied in many national contexts and have been found to carry significant weight in student recruitment (Rybiński & Wodecki, 2022), shape student identity and learning satisfaction (Huang, Chen, & Chien, 2015), and influence employee quality of life (Fontinha, Van Laar, & Easton, 2016). Additionally, practitioner rankings influence university marketing (Kethüda, 2022; Soh, 2016). An area we wish to emphasize is that these ranking systems have been shown to fundamentally shape program design in institutions striving to earn a top-ranked spot on the lists (Fowles et al., 2016). These systems often focus on easily collected information from universities such as the number of professors, courses, scholarships, staff-to-student ratios, competitions, and start-ups founded by recent graduates. Thus, the ranking systems focus on inputs into the education process, which does little to adequately assess the efficacy of the entrepreneurship education effectiveness. The growth in popularity of these ranking systems is representative of a drive towards an expectation of transparency and performance measurement for the education sector and an appetite from consumers for data to analyze and compare options. The algorithms that determine school and program success vary by publication. Popular systems include the US News, World University Rankings, Princeton Review, Wall Street Journal/Times Higher Education, and Poets & Quants. While many are built upon the same basic factors, they emphasize various aspects

of student outcomes, school resources, selectivity, and reputation. These systems typically focus on easily collected information from universities and many institutions use them as an indicator of success and marketing tool. The prominence of these ranking systems means that educators have ceded significant control over defining what makes an effective program to external actors outside of higher education.

For entrepreneurship education, we shall focus on three prominent ranking systems: US News, Poets & Quants, and Princeton Review. According to US News, the entrepreneurship program rankings are "based solely on peer assessment surveys" from Deans and senior faculty members (US News, 2021). This is consistent with global ranking systems such as the World University Rankings, which bases half of the teaching metric on reputation surveys (Times Higher Education, 2023). Poets & Quants ranks a limited number of programs (38) at the graduate level and the ranking methodology used for 2022 had sixteen metrics (Allen, 2021). Princeton Review aggregates data from 300 schools across twenty-one metrics (The Princeton Review, 2021). Figure 3 shows the metrics from these ranking systems overlaid on the theory of change model.

Figure 3
Theory of change applied to ranking metrics

Inputs	Activities	Outputs	Outcomes	Impact
Princeton review– ~300 schools report data and the top-ranked ones are included in their list of "Top 50 Undergrad Schools for Entrepreneurship" or "Top 50 Graduate Schools for Entrepreneurship" (EE = entrepreneurship education)				
• Number of students enrolled in EE offerings • Percent of the student body enrolled in EE • Number of faculty teaching at least 1 EE course • Faculty entrepreneurial experience • Funding for prizes • Mentors • Total cash awards for competitions • Total in-kind	• Types of degrees offered in EE • Entrepreneurship Center • Number and types of courses taught • Cross-discipline team experiences • Programs where students are mentored by someone outside of the university • Types of competitions hosted	• Number of business plans developed and tested • Number of students mentored • Percent of cash prizes awarded to students enrolled in entrepreneurship offerings • Percent of in-kind prizes awarded to students enrolled in entrepreneurship	• Money raised by student and alumni ventures at 5 and 10 years	• Alumni firm survival at 5 and 10 years

awards for competitions	• Number and dollar amount of scholarships	offerings		
Poets & Quants—38 MBA programs ranked, 29 of whom submitted data, 9 were based on publicly available information				
• Percent of Faculty involved • Ratio of start-up funding available to students • Ratio of start-up award money available to students • Ratio of number of mentors to students • Ratio of entrs. in residence to students • Ratio of incubator space to students • Percent of faculty involved in a start- up	• Percent of courses that are EE • Percent of all students taking an EE elective • Percent of students in entr. clubs	• Ratio of Entr. Mentor hours to total students • Number of students mentored • Start-up award money	• Percent of students launching • Percent of students taking positions in VC • Percent of students accepting a position with a start-up	

In comparing these ranking methodologies, there are several noteworthy items. First, peer- based surveys fail to recognize the potential reputation versus reality gap (Eccles, Newquist, & Schatz, 2007). The content of the methodologies favors established large, wealthy institutions. Second, the measured rankings are heavily weighted on Inputs and Activities, accounting for 68% of the metrics tracked (25 of 37). An emphasis on Inputs and Activities favors large universities with large resource endowments. While it seems logical that resource-rich institutions should be able to offer high-quality education, these metrics do not directly assess Outputs or Outcomes. Third, only 14% of the metrics relate to Outcomes and Impacts and are heavily focused on launching a new venture--a metric only applicable to a small number of entrepreneurship education graduates. Finally, the rankings have an emphasis on venture capital-oriented criteria. Very few start-ups access venture capital and these types of funds flow mainly to high-tech and biotech industries. Thus, rewarding entrepreneurship programs at a limited number of universities.

Other widespread forms of assessment include teaching evaluations, objective measures of learning, and self-assessments of career readiness. Teaching evaluations are the most widespread measure of effective teaching in higher education broadly. These have significant limitations in understanding the efficacy of an entrepreneurship education program because of their focus on individual class experiences (Stehle, Spinath, & Kadmon, 2012), emphasis on things not related to learning outcomes (Goos & Salomons, 2016), and time proximity to intervention. Objective measures of learning, such as standardized exams like ETS and TOEFL, used to assess performance in many business schools overcome these issues, but are still limited to measuring the immediate result of the curricular intervention, making it an Output and one that

is not specific to entrepreneurship education (Stehle et al., 2012). Finally, some universities have established programs to track early alumni transitions to the workforce as one measure of success and an example is a partnership with organizations such as the National Association of Colleges and Employers (NACE) to learn best practices and gain access to comparative data. NACE provides data on the employment of recent college graduates and surveys graduates along with their employers as to the skills of recent graduates in eight critical areas (e.g., critical thinking, written communication, and teamwork). These competencies are valuable to all graduates and provide some insight into entrepreneurship education effectiveness, but not entrepreneurship-specific competencies.

PROPOSAL

We advocate that entrepreneurship education programs should adopt measurement systems that capture an array of Impacts and Outcomes related to skills associated with exploring the entrepreneurial process and career readiness. We assert that entrepreneurship educators should take a broader human capital approach to learning goals to develop entrepreneurial mindsets in our students and meaningful evaluation metrics. The human capital theory asserts that when a person's skills, knowledge, and competencies increase, there is a resulting improvement in the person's performance leading to an improved economic condition (Gruber, Dencker, & Nikiforou, A, 2023; Becker, 1994). This is congruent with entrepreneurship research which places the entrepreneur as a central driver of change and economic development (Mehmood, Alzoubi, Alshurideh, et.al., 2019; Schumpter, 1942). A focus on developing student skills, knowledge, and competencies related to entrepreneurship would logically follow that they would do better in their careers —the question for entrepreneurship educators becomes: *Which skills, knowledge, and competencies both support early career success and venture creation for our alumni?* Entrepreneurship education researchers are encouraged to measure outcomes and impacts of graduates and this requires gathering data from alumni who have had the opportunity to put into practice the skills, knowledge and competencies they gained from their education. Most entrepreneurship pedagogy research has utilized entrepreneurial intentions from an easier to obtain student sample.

Our research team of faculty from three universities came together to explore the question of how we could more effectively evaluate entrepreneurship education programs. We believe that this conversation needs voices from a range of academics connected to the scholarship, teaching, and practice of entrepreneurship, which our team reflects. We have hosted focus groups with entrepreneurship center advisory boards and other entrepreneurship educators, interviewed early career graduates, and compared programs within our academic alliance. We have learned from those conversations that many entrepreneurship education programs have not identified their own metrics to track the efficacy of their programs and many program administrators rely on the existing ranking system questionnaires for which metrics to track. The theory of change logic model can be a useful tool to guide the development of aligned and meaningful metrics. If we as a field can agree upon shared Outcomes and Impacts then individual programs can work backward from these to develop their own set of outputs, activities, and

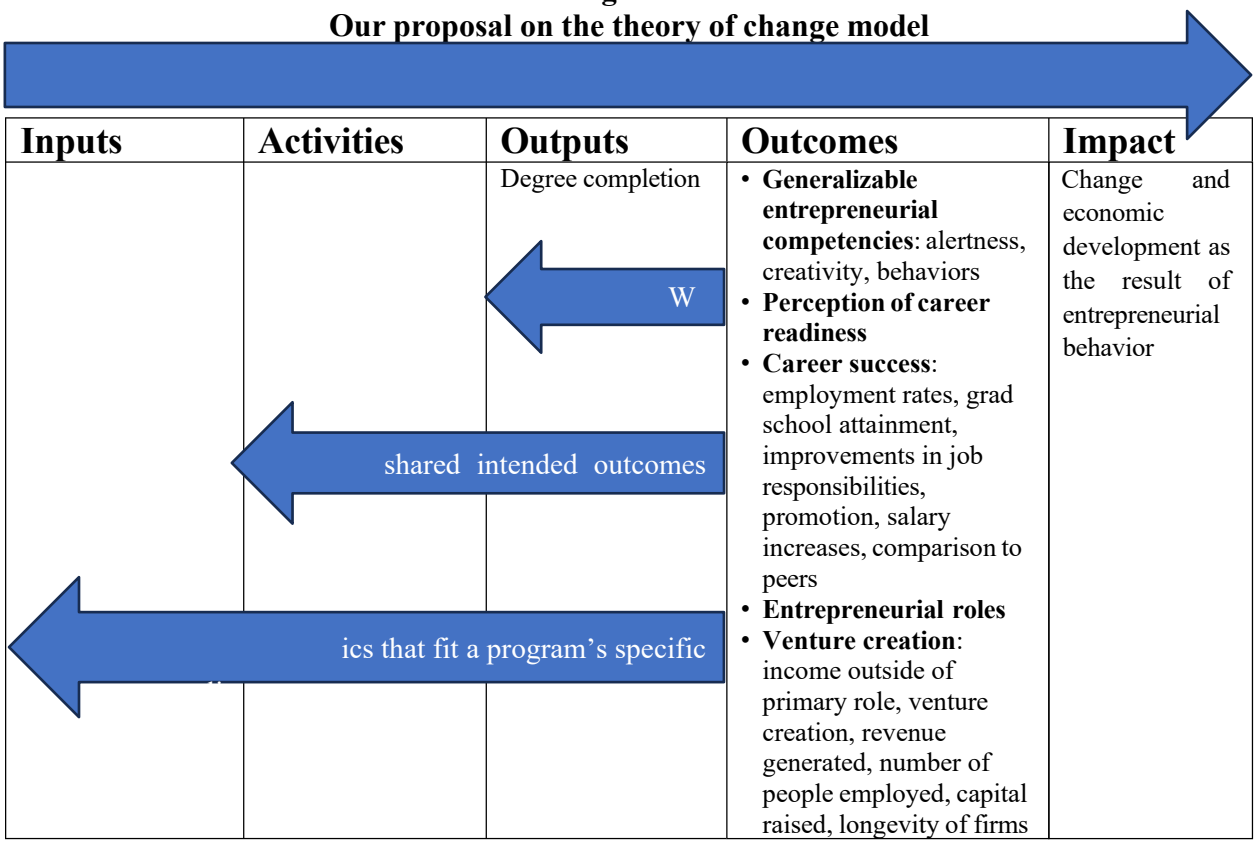
inputs necessary to achieve those desired effects. This approach would allow schools to customize a dashboard of metrics that makes sense for their institutional context.

To begin this conversation more concretely, we propose that the ultimate impact of entrepreneurship education is to encourage positive social change and economic development (Lumpkin, Bacq, & Pidduck, 2018) as the result of entrepreneurial behavior and assert that the following five outcomes would be valuable to compare across schools to achieve this impact.

1. Generalizable entrepreneurial competencies
2. Career readiness
3. Career success
4. Entrepreneurial roles
5. Venture creation

Establishing clear shared efficacy metrics allows for a more effective comparison of programs that identifies what practices lead to desired educational goals as opposed to simply replicating the practices of high-prestige programs. For example, the *Princeton Review* ranking system tracks the total cash awarded in competitions. In theory, this metric helps to ensure that entrepreneurship education programs are creating experiential learning opportunities for their students and creating increased financial support for nascent entrepreneurs, but there is no direct link between the amount of money awarded in competitions and actual student or alumni outcomes. There is however a direct link between universities with higher ranking scores and resource rich schools. We question whether competition funding is a necessary input for all schools to track and suggest that faculty working within their programs develop their own metrics. A school may utilize a different activity to achieve the same outcome and this would require tracking their own constellation of aligned output, activity, and input metrics. Figure 4 lays out our proposed metrics on top of the theory of change model. Each of the five proposed outcome categories are discussed in more detail below and Table 1 suggests potential assessment tools that would allow outcome comparisons across programs.

Figure 4
Our proposal on the theory of change model



Generalizable entrepreneurial competencies

The entrepreneurship literature outlines a range of entrepreneurial competencies (e.g. Bacigalupo et al., 2016; Gümüsay & Bohné, 2018; Morris, Webb, et al., 2013). However, some of these competencies are more relevant for students seeking to immediately create ventures and others are more generalizable to other forms of identifying and exploiting opportunities. Through this lens, three competencies stand out as generalizable to all entrepreneurship students: opportunity alertness (Tang,, & Busenitz, 2012), entrepreneurial behaviors (Pearce, Kramer, & Robbins, 1997), and creativity (Farmer, Tierney, & Kung-McIntyre, 2003). Effective entrepreneurship education programs should seek to build these competencies in their students. Measuring entrepreneurship program alumni competence in alertness, entrepreneurial behavior, and creativity in comparison to other graduates would be a more effective outcome measurement for the majority of entrepreneurship grads than entrepreneurial intent.

Career readiness

There have been calls for management education to better meet the career needs of enrolled students (D'Souza, Bement, & Struckell, 2022; Koys, Thompson, Martin, & Lewis, 2019) as well as to better understand the relationship between entrepreneurship education and employability (Killingberg, Kubberød, & Pettersen, 2022; Pittaway & Cope 2017). Business

education research has proposed three areas for universities to target to improve our programs, which are critical thinking, career self-management, and management competencies (Bunch, 2020). We adopt an expanded list of competencies created by NACE, which encompasses these three areas, is a logical approach as considerable data is available for assessment and tracking. As a professional association, NACE connects college career services, university relations, and recruiting professionals and has become a leading source of information on the employment of recent college graduates. They have identified eight core career readiness competencies that could each be measured as separate outcome metrics: career and self-development, communication, critical thinking, global awareness, leadership, professionalism, teamwork, and technology.

Effective entrepreneurship education programs should build these competencies in addition to generalizable entrepreneurial competencies. While the base rate of venture creation at the time of graduation is significantly higher for entrepreneurship than non-entrepreneurship graduates, only 7% of entrepreneurship education graduates immediately launch ventures as compared to 76% who begin their careers in traditional full-time employment (NACE, 2021). Early career alumni are ten times more likely to have traditional employment than as a start-up founder and we have an obligation to track career readiness as a part of program efficacy assessments to ensure student needs are met. We believe that further research is merited to better understand if the acquisition of generalizable entrepreneurial competencies positively influences career readiness.

Early career success

Alumni perceptions of early career success and measures of career improvement are important outcome metrics for entrepreneurship education programs. The leading reasons for attending college are related to skills that lead to a successful career. Polling shows the desire to obtain knowledge and skills (65%), allow for a fulfilling career (61%), and to land a higher paying job (60%) are the only responses that score higher than 50% (Gallup & Lumina, 2022). Entrepreneurship education alumni may turn to venture creation as a result of positive and negative career shocks (Rummel, Akkermans, Blokker & Van Gelderen, 2019) and early career success puts them in a more advantageous position to begin something new. Early career success allows alumni to earn income, gain experience, build financial security, and develop expertise necessary to identify opportunities for venture creation and effectively run their own organizations later in life. Further, entrepreneurship education alumni who remain within existing organizations can utilize their entrepreneurial skills, knowledge, and capabilities to enhance their organization's ability to capitalize on opportunities that strengthen their employer's sustainability and better serve society's needs (Anokhin, Wincent, & Oghazi, 2016). Potential outcome metrics for early career success could include: rate of promotions, salary increases, expanded responsibilities, performance evaluations, and comparisons to peers. Tracking outcome metrics related to early career success would allow programs to understand their efficacy beyond initial job placement.

Entrepreneurial roles

Killingberg, Kubberød, & Pettersen (2022) found that entrepreneurship graduates play valuable roles within firms by bridging across business disciplines and providing specific knowledge relating to innovation. Not all early career positions are created equal in terms of opportunities for employees to identify and exploit opportunities to affect change. Some jobs are very narrow in tasks, autonomy, and scope, while others are more flexible, varied, and autonomous. We would define that latter as an "entrepreneurial" role within an organization and assert that entrepreneurship education alumni in more entrepreneurial roles have a higher likelihood of helping entrepreneurship education reach its intended societal impact. The ratio of alumni in entrepreneurial roles would be a valuable outcome metric for entrepreneurship education programs to track. These entrepreneurial roles provide benefits to program graduates as they have an opportunity to practice the skills learned in their entrepreneurship education while traditionally employed.

Table 1
Proposed efficacy metrics of Entrepreneurship Education (EE)

Rationale for why this is a valuable measure of EE	Assessment Tools
Generalizable Entrepreneurial Competencies	
There is a range of generalizable entrepreneurial competencies (e.g. Bacigalupo et al., 2016; Gümüsay & Bohné, 2018; Morris et al., 2013b). Measuring EE alumni's competence in alertness, entrepreneurial behavior, and creativity in comparison to other graduates would be an effective Outcome measurement for EE grads.	**Opportunity Alertness Scale** (Tang, Kacmar, & Busenitz, 2012) Measures individual's ability to recognize opportunities, evaluate opportunities, **Entrepreneurial behaviors** (Pearce, Kramer, & Robbins, 1997) Measures actions related to entrepreneurship as drive and implementation are key metrics **Employee creativity** (Farmer, Tierney, & Kung-McIntyre, 2003) The ability to innovate, pivot and create paths forward are important skills for entrepreneurs
Career Readiness	
Most EE graduates enter traditional employment and it is important to understand their career readiness. NACE has a long track record of working with employers to identify eight key competencies. These competencies are linked with high-achieving employees. Effective EE programs should build these competencies in addition to the generalizable entrepreneurial competencies. Utilizing this type of framework would allow EE programs to benchmark themselves in comparison to other programs.	**NACE competencies:** The survey instrument for each competency is available through the NACE website: • Career and self-development • Communication • Critical thinking • Equity and inclusion • Leadership • Professionalism • Teamwork • Technology
Early Career Success	
Alumni perceptions of early career success and measures of career improvement are important outcome metrics for EE programs. The leading reasons for attending college are related to skills and career success.	**Percent of graduates who experienced measures of success in their jobs:** Self-report measures provided by recent graduates and the NACE survey have several survey questions

This is a goal for the student and why they pursued an education. It is a measure of education efficacy to provide human capital skills that will allow graduates to succeed in their endeavors.	related to this area. • Increase in responsibility • Increase in compensation • Change in job title
Entrepreneurial Role	
Graduates of EE programs should be interested in career opportunities related to their interest in entrepreneurship. Some jobs fit this interest and are more flexible, varied, and autonomous. A graduate with an "entrepreneurial" role within an organization benefits them as they have an opportunity to practice the skills learned in their EE while traditionally employed.	**Percent of graduates within "entrepreneurial roles" as measured by:** Qualitative assessment is required of the job role description. • Role Autonomy • Task variety • Job Scope • Flexibility
Venture Creation	
Entrepreneurship researchers have long recognized that new venture creation is a non-linear process with a myriad of indicators (Reynolds, 2007). Recent graduates may lack industry knowledge, contacts, and financial means to pursue a start-up right after graduation. If a graduate is working to build these resources, it is important to consider including this in the assessment of 'working on' a start-up.	**Percent of alumni who report:** Measures from the PSED (Reynolds (2007) assess numerous start-up activities • Venture start • Preparing to start • Earning income outside of the primary job

Venture creation

Finally, we cannot overlook the importance of venture creation as an outcome of entrepreneurship education programs. Entrepreneurship researchers have long recognized that new venture creation is a non-linear process with a myriad of indicators (Reynolds, 2007). This is not how non-academic program rankings measure entrepreneurship education programs and recent graduates. An important issue is the lack of data tracking recent entrepreneurship graduates as to steps they may be taking in creating a new venture. These can include the over two dozen measures from the PSED as listed by Reynolds (2007). Research has examined links between the venture creation process and entrepreneurship pedagogy and found consistent positive emphasis of start-up skills within entrepreneurship textbooks (Edelman, et.al., 2008). Examples of new venture creation activities that overlap from the PSED and entrepreneurship education pedagogy includes defining opportunities, market research, fund and resource requirements, intellectual property, and implementation planning. It is noteworthy that these skills are also valuable for employees within an existing organization. There is not a rigid, stepwise path for venture creation; the start-up process evolves and is 'messy' (Reynolds, 2007). However, this is not how universities report the number of entrepreneurship education graduates who are founding a new venture to ranking organizations. For example, many entrepreneurs are traditionally employed while they are working to launch their new venture. These individuals are not often reported as entrepreneurs to ranking systems.

CONTRIBUTIONS AND FUTURE CONVERSATIONS

The purpose of this paper is to spur a discussion about entrepreneurship education, to arrive at best practices as to what is taught and how success in our programs is determined. A theory of change logic model is proposed as a conceptual tool to act as a guide to assess the effectiveness of our entrepreneurship education programs. This model illustrates how current performance ranking metrics do not appropriately capture the full range of Outcomes and Impacts of entrepreneurship education.

Our main contribution is to provide entrepreneurship educators with a direction to assess their programs in terms of five core areas: generalizable entrepreneurial competencies, early career success, career readiness, entrepreneurial roles, and venture creation. This is consistent with the call for business educators to align our education learning goals with skills relevant to employers' needs and career readiness (Bement et al., 2020).

We aim for this work to spur future conversations that engage all entrepreneurship researchers. Because effective pedagogy is both built on high-quality academic research and can fundamentally change how the subjects of entrepreneurship research operate, we believe this is a conversation that should include all entrepreneurship researchers and aim for this proposal to spur much-needed conversations around the core questions for our discipline:

1. **What is the purpose of Entrepreneurship Education?** There have been numerous calls to better ensure that entrepreneurship education meets the needs of its students (Bement et al., 2020; Edelman et al., 2008) but there is no clear agreement as to what those needs are. What benefit can entrepreneurship theory and knowledge provide to undergraduate students who are entering the traditional workforce? What unique offerings does the entrepreneurship discipline offer these graduates that are not a part of other business and non-business disciplines? Is there a downside to reducing the primacy of venture starts within entrepreneurship education? Are these tradeoffs worth it to our discipline? Is there a way to effectively build both venture and career readiness?
2. **What specific outcome metrics align with this purpose?** How do we define program success? Which stakeholders do we prioritize in developing these metrics? You may have read this work and agreed with our assertion that our current assessment systems fail to capture key metrics of success, but do not agree with the metrics we proposed in this paper. We believe that disagreeing on metrics can lead to valuable conversations in the discipline that help us better understand the purpose and efficacy of entrepreneurship education.
3. **How would the measurement of these metrics potentially change the way we approach Entrepreneurship Education?** If the discipline agrees that the purpose of entrepreneurship education is to enable our graduates to think and act entrepreneurially in whatever career position they are in, then we should examine our programs to ensure that our coursework aligns with that purpose. For example, we know that three out of four entrepreneurship education alumni are engaged in traditional employment following the completion of our programs, yet fewer than half of the schools in our academic alliance offer courses on corporate entrepreneurship. How can entrepreneurship education provide skills that are both relevant to organizations and consistent with the entrepreneurship process? Future work could examine how to adapt corporate entrepreneurship courses to focus more on the leadership of innovation and how this can be related to a modern 'gig' economy.
4. **What is the downside of reducing the primacy of venture starts within Entrepreneurship Education?** While we believe that it is important to acknowledge the reality of the career tracks of our graduates, is there a risk of reducing the primacy of venture starts as a signal of program effectiveness? What do we as a discipline risk by shifting our focus from the minority of students launching right now to preparing graduates for traditional employment while developing a toolkit for them to use later in life? Are these tradeoffs worth it to our discipline? Is there a way to effectively build both?

These conversations are overdue, and we believe they can ultimately provide great benefits to our students, and their careers while furthering the intended impact of entrepreneurship education to positively improve economies.

REFERENCES

Allen, N. (2021). The methodology behind P&Q's top MBA programs for Entrepreneurship in 2022. Retrieved from https://poetsandquants.com/2021/10/24/methodology-top-mba-programs-for-entrepreneurship-in- 2022/?pq-category=mba-rankings

Alvarez, S., & Barney, J. B. (2020). Has the concept of opportunities been fruitful in the field of entrepreneurship? *Academy of Management Perspectives*, *34*(3), 300-310.

Anokhin, S., Wincent, J., & Oghazi, P. (2016). Strategic effects of corporate venture capital investments. *Journal of Business Venturing Insights*, *5*, 63-69.

Bacigalupo, M., Kampylis, P., Punie, Y., & Van den Brande, G. (2016). EntreComp: The entrepreneurship competence framework. *Luxembourg: Publication Office of the European Union*, *10*, 593884.

Bae, T. J., Qian, S., Miao, C., & Fiet, J. O. (2014). The Relationship Between Entrepreneurship Education and Entrepreneurial Intentions: A Meta-Analytic Review. *Entrepreneurship Theory and Practice*, *38*(2), 217-254. doi:10.1111/etap.12095

Becker, G. S. (1994). *Human Capital: A theoretical and empirical analysis with special reference to education* (third ed.): University of Chicago Press.

Bolzani, D., & Foo, M. D. (2018). The "why" of international entrepreneurship: uncovering entrepreneurs' personal values. *Small Business Economics*, *51*, 639-666.

Bunch, K. J. (2020). State of undergraduate business education: a perfect storm or climate change? *Academy of Management Education, 19*(1), 81-98.

Carman, J. G., & Fredericks, K. A. (2010). Evaluation capacity and nonprofit organizations: Is the glass half-empty or half-full. *American Journal of Evaluation, 31*(1), 84-104.

Choi, J. I., & Markham, S. (2019). Creating a corporate entrepreneurial ecosystem: The case of entrepreneurship education in the RTP, USA. *Journal of Open Innovation: Technology, Market, and Complexity*, *5*(3), 62.

Cualheta, L. P., & Abbad, G. d. S. (2022). Assessing Entrepreneurship Education Outcomes in an Innovative Way: Situational Judgment Tests. *Entrepreneurship Education and Pedagogy, 5*(1), 89-112. doi:10.1177/2515127420975176

Dean, T., & McMullen, J. S. (2007). Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action. *Journal of Business Venturing, 22*, 50-76. doi:doi:10.1016/j.jbusvent.2005.09.003

D'Souza, D. E., Bement, D., & Cory, K. 2022. Cross-functional integration skills: Are business schools delivering what organizations need? *Decision Sciences Journal of Innovative Education*, 20(3): 117-130.

DeTienne, D. R., & Chandler, G. N. (2004). Opportunity identification and its role in the entrepreneurial classroom: A pedagogical approach and empirical test. *Academy of Management Learning & Education, 3*(3), 242- 257.

Ebrahim, A., & Rangan, V. K. (2014). What impact? A framework for measuring the scale and scope of social performance. *California Management Review, 56*(3), 118-141.

Eccles, R. G., Newquist, S. C., & Schatz, R. (2007). Reputation and its risks. *Harvard Business Review, 85*(2), 104.

Edelman, L., Manolova, T., & Brush, C. (2008). Entrepreneurship education: Correspondence between practices of nascent entrepreneurs and textbook prescriptions for success. *Academy of Management Learning & Education, 7*(1), 56-70.

Epstein, M. J., & Yuthas, K. (2014). *Measuring and Improving Social Impacts: A Guide for Nonprofits, Companies, and Impact Investors*. United Kingdom: Greenleaf Publishing Limited.

Fairlie, R. (2022). *National report on early-stage entrepreneurship in the United States: 2021*. Kansas City: Ewing Marion Kauffman Foundation.

Farmer, S. M., Tierney, P., & Kung-McIntyre. (2003). Employee creativity in Taiwan: An application of role identity theory. *Academy of Management Journal, 46*(5), 618-630.

Fontinha, R., Van Laar, D., & Easton, S. (2016). Quality of working life of academics and researchers in the UK: the roles of contract type, tenure and university ranking. *Studies in Higher Education, 43*(4), 786-806. doi:10.1080/03075079.2016.1203890

Fowles, J., Frederickson, H. G., & Koppell, J. G. S. (2016). University Rankings: Evidence and a Conceptual Framework. *Public Administration Review, 76*(5), 790-803. doi:10.1111/puar.12610

Gallup, & Lumina. (2022). *The State of Higher Education Report*. Retrieved from https://www.gallup.com/file/analytics/391862/Gallup-Lumina%20State%20of%20Higher%20Education%202022%20Report.pdf:

Gartner, W. B. (1989). "Who is an entrepreneur?" Is the wrong question. *Entrepreneurship Theory and Practice, 13*(4), 47-68. doi: 10.1177/104225878901300406

Goos, M., & Salomons, A. (2016). Measuring teaching quality in higher education: assessing selection bias in course evaluations. *Research in Higher Education, 58*(4), 341-364. doi:10.1007/s11162-016-9429-8

Gruber, M., Dencker, J. C., & Nikiforou, A. (2023). How Founder Human Capital and Founding Conditions Shape New Firm Performance: A Study of Necessity Entrepreneurship during Times of Economic Crisis. *Academy of Management Journal*, (ja).

Gümüsay, A. A., & Bohné, T. M. (2018). Individual and organizational inhibitors to the development of entrepreneurial competencies in universities. *Research Policy, 47*, 363-378.

Honig, B. (2004). Entrepreneurship education: toward a model of contingency-based business planning. *Academy of Management Learning & Education, 3*(3), 258-273.

Huang, L.-L., Chen, S.-W., & Chien, C.-L. (2015). The effect of university ranking on learning satisfaction: Social identities and self-identity as the suppressor and mediators. *Asian Journal of Social Psychology, 18*(1), 33-42. doi:10.1111/ajsp.12064

Ilonen, S., & Hytönen, K. (2022). Why Should I Become an Intrapreneur? Introducing the Concept of Intrapreneurial Outcome Expectations. *Entrepreneurship Education and Pedagogy*, 251512742210916. doi:10.1177/25151274221091692

Johnson, C., Lusch, R., & Schmidtz, D. (2020). Entrepreneurship and Creative Destruction. *Business Ethics and Leadership, 2020, 4 (2): 102*, *108*.

Kauppi, N. (2018). The global ranking game: Narrowing academic excellence through numerical objectification. *Studies in Higher Education, 43*(10), 1750-1762.

Kethüda, Ö. (2022). Evaluating the influence of university ranking on the credibility and perceived differentiation of university brands. *Journal of Marketing for Higher Education*, 1-18. doi:10.1080/08841241.2022.2059733

Killingberg, N. M., Kubberød, E., & Pettersen, I. B. (2022). Exploring the Transition to Working Life of Entrepreneurship Education Graduates: A Longitudinal Study. *Entrepreneurship Education and Pedagogy*, 251512742211083. doi:10.1177/25151274221108354

Koys, D. J., Thompson, K. R., Martin, W. M., & Lewis, P. (2019). Build it and they will come: Designing management curricula to meet career needs. *Journal of Education for Business, 94*(8), 503-511. doi:10.1080/08832323.2019.1580244

Liguori, E., Winkler, C., Winkel, D., Marvel, M. R., Keels, J. K., van Gelderen, M., & Noyes, E. (2018). The entrepreneurship education imperative: Introducing EE&P. *Entrepreneurship Education & Pedagogy, 1*(1), 5-7.

Lumpkin, G. T., Bacq, S., & Pidduck, R. J. (2018). Where change happens: Community-level phenomena in social entrepreneurship research. *Journal of Small Business Management*, *56*(1), 24-50.

Lynch-Cerullo, K., & Cooney, K. (2011). Moving from outputs to outcomes: A review of the evolution of performance measurement in the human service nonprofit sector. *Administration in Social Work, 35*(4), 364-388. doi:10.1080/03643107.2011.599305

Martin, B. C., McNally, J. J., & Kay, M. J. (2013). Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes. *Journal of Business Venturing, 28*(2), 211-224. doi:10.1016/j.jbusvent.2012.03.002

Martínez-Gregorio, S., Badenes-Ribera, L., & Oliver, A. (2021). Effect of entrepreneurship education on entrepreneurship intention and related outcomes in educational contexts: A meta-analysis. *The International Journal of Management Education*, *19*(3), 100545.

Mawson, S., Casulli, L., & Simmons, E. L. (2022). A Competence Development Approach for Entrepreneurial Mindset in Entrepreneurship Education. *Entrepreneurship Education and Pedagogy*, 251512742211431. doi:10.1177/25151274221143146

McClelland, D. C. (1961). *Entrepreneurial behavior: The achieving society* (pp. 205–258): D Van Nostrand Company.

McDavid, J. C., Huse, I., & Hawthorn, L. R. L. (2018). *Program Evaluation and Performance Measurement: An Introduction to Practice*: SAGE Publications.

Mehmood, T., Alzoubi, H. M., Alshurideh, M., Al-Gasaymeh, A., & Ahmed, G. (2019). Schumpeterian entrepreneurship theory: Evolution and relevance. *Academy of Entrepreneurship Journal*, *25*(4), 1-10.

Morris, M., Kuratko, D. F., & Cornwall, J. R. (2013). *Entrepreneurship programs and the modern university*: Edward Elgar Publishing.

Morris, M., Webb, J., Fu, J., & Singhal, S. (2013). A competency-based perspective on entrepreneurship education: Conceptual and empirical insights. *Journal of Small Business Management, 51*(3), 352-369.

Nabi, G., Linan, F., Fayolle, A., Krueger, N. F., & Walmsley, A. (2017). The impact of entrepreneurship education in higher education: A systemic review and research agenda. *Academy of Management Learning & Education, 16*(2), 277-299.

NACE. (2021). First destinations for the college class of 2019.

Neumann, T. (2021). The impact of entrepreneurship on economic, social and environmental welfare and its determinants: a systematic review. *Management Review Quarterly*, *71*(3), 553-584.

O'Connor, A. (2013). A conceptual framework for entrepreneurship education policy: Meeting government and economic purposes. *Journal of Business Venturing, 28*(4), 546-563. doi:10.1016/j.jbusvent.2012.07.003

Pearce, J. A., Kramer, T. R., & Robbins, D. K. (1997). Effects of managers' entrepreneurial behavior on subordinates. *Journal of Business Venturing, 12*, 147-160.

Pittaway, L., & Cope, J. 2007. Entrepreneurship Education: A Systematic Review of the Evidence. *International Small Business Journal*, 25(5): 479-510.

Reynolds, P. D. (2007). New firm creation in the United States: A PSED I overview. *Foundations and Trends in Entrepreneurship, 3*(1), 1-150.

Rummel, S., Akkermans, J., Blokker, R., & Van Gelderen, M. 2019. Shocks and entrepreneurship: a study of career shocks among newly graduated entrepreneurs. *Career Development International*, 26(4): 562-581.

Rybiński, K., & Wodecki, A. (2022). Are university ranking and popularity related? An analysis of 500 universities in Google Trends and the QS ranking in 2012-2020. *Journal of Marketing for Higher Education*, 1-18. doi:10.1080/08841241.2022.2049952

Sarooghi, H., Sunny, S., Hornsby, J., & Fernhaber, S. (2019). Design thinking and entrepreneurship education: Where are we, and what are the possibilities?. *Journal of Small Business Management*, *57*, 78-93.

Schuhmacher, M. C., & Thieu, H. T. (2022). The role of students, educators, and educational institutes in entrepreneurship education: A systematic literature review and directions for future research. *Entrepreneurship Education and Pedagogy, 5*(3), 279-319.

Schumpeter, J. A. (1942). *Capitalism, Socialism and Democracy*. New York: Harper.

Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review, 25*(1), 217-226.

Soh, K. (2016). The seven deadly sins of world university ranking: a summary from several papers. *Journal of Higher Education Policy and Management, 39*(1), 104-115. doi:10.1080/1360080x.2016.1254431

Stehle, S., Spinath, B., & Kadmon, M. (2012). Measuring Teaching Effectiveness: Correspondence Between Students' Evaluations of Teaching and Different Measures of Student Learning. *Research in Higher Education, 53*(8), 888-904. doi:10.1007/s11162-012-9260-9

Stewart, W. H., & Roth, P. L. (2001). Risk propensity differences between entrepreneurs and managers: A meta- analytic review. *Journal of Applied Psychology, 86*(1), 145.

Tang, J., Kacmar, K. M., & Busenitz, L. (2012). Entrepreneurial alertness in the pursuit of new opportunities. *Journal of Business Venturing, 27*(1), 77-94. doi:10.1016/j.jbusvent.2010.07.001

Tantawy, M., Herbert, K., McNally, J. J., Mengel, T., Piperopoulos, P., & Foord, D. (2021). Bringing creativity back to entrepreneurship education: Creative self-efficacy, creative process engagement, and entrepreneurial intentions. *Journal of Business Venturing Insights, 15*, e00239. doi:10.1016/j.jbvi.2021.e00239

The Princeton Review (2021). Entrepreneurship rankings: Our methodology. *The Princeton Review*. https://www.princetonreview.com/college-rankings/top-entrepreneur/methodology

Times Higher Education (2023). World University Ranking 2022: Methodology. https://www.timeshighereducation.com/world-university-rankings/world-university-rankings-2022-methodology

Urbano, D., Aparicio, S., & Audretsch, D. (2019). Twenty-five years of research on institutions, entrepreneurship, and economic growth: what has been learned?. *Small Business Economics*, *53*, 21-49.

US News & World Reports (2021). Best undergraduate entrepreneurship programs Best colleges rankings (Vol. 2021). https://www.usnews.com/best-colleges/rankings/business-entrepreneurship: *US News and world report.*

Walter, S. G., & Block, J. H. (2016). Outcomes of entrepreneurship education: An institutional perspective. *Journal of Business Venturing, 31*(2), 216-233. doi:10.1016/j.jbusvent.2015.10.003

Yi, S., & Duval-Couetil, N. (2021). Standards for evaluating impact in entrepreneurship research: Using a descriptive validity framework to enhance methodological rigor and transparency. *Entrepreneurship Theory and Practice*. doi:10. 1177/ 1042 2587 2110 18184

USING ACCOUNTING INFORMATION TO VALUE A BUSINESS – A CASE STUDY FOR THE MBA FINANCIAL ACCOUNTING COURSE

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CASE DESCRIPTION

The primary purpose of this case is to illustrate how financial accounting information can be used by potential purchasers of an existing business to develop a bid to purchase the business shown in the case. Secondary issues include the use of Excel for present value calculations such as calculating internal rate of return and differential use of operating cash flow and accrual accounting information for valuation purposes. The case has a difficulty level of five, appropriate for first year graduate students. The case has been designed to be used in a Financial Accounting course within an MBA program. Additionally, the case could be used in a junior or senior level finance or accounting class where students have the appropriate knowledge of financial statements and present value analysis. The case can be taught in 1-2 hours with no outside preparation by students as long as students have had exposure to present value concepts and financial accounting ratios.

CASE SYNOPSIS

In this case, students play the role of investors seeking to buy a fictitious company (USD Motors) that has prior financial statements available. Students forecast future income and operating cash flows for USD Motors and use this information to create a bid to buy the Company. Students learn how to use Excel to compute the present value of future net incomes and future operating cash flows as part of the process of putting together a bid. Students will discover how past accounting information can be used to make an important business decision. Students will compare their bid to benchmark data for Price to Earnings Ratio and Market to Book Value Ratio to make sure that their bid is reasonable. Students will prepare "sealed bids" that will be submitted to the course instructor toward the end of a class session. The highest bidding group will be the new "owner" of USD Motors.

THE SITUATION

The purpose of this case is to allow students the opportunity to see how financial accounting information can be used to determine how much to offer when attempting to buy an existing business. You will be put in a group so that you, and the others in your group, can

develop an understanding of how accounting information can be useful in making a business decision.

Specifically, each student group will independently calculate what the group is willing to bid to purchase a fictitious company (USD Motors). In this case, you are provided with income statements for USD Motors for the most recent four years as well as the Company's most recent balance sheet (see below). Each group will use this past financial statement information to try to develop a reasonable price to bid for USD Motors. Groups will develop bids by using the following three-step process:

Step 1: Make forecast (a best estimate) of what they think USD Motors' earnings will be over the next 20 years.
Step 2: Determine the present value of USD Motors' forecasted future earnings (and the present value of its expected operating cash flows).
Step 3: Adjust these present value figures for the current cash and liability position of the Company.

After the student groups complete the above process (using three recommended approaches discussed below) each group will need to discuss their analysis and will need to judgmentally decide on a bid to try to acquire the existing business. Toward the end of the class session, each group will submit to their professor (on a piece of paper) a "sealed" bid to purchase USD Motors. The professor will write on the board the bid for each group and the highest bidding group will be the new "owner" of USD Motors. To conclude the class session, the class will examine the reasonableness of the highest winning bid in the light of the current Price to Earnings Ratio and Market to Book Value Ratio of the "average" company in the United States.

To aid each group in its decision-making process, the most recent four years of income statements for USD Motors are provided (see Table 1 below). Additionally, information concerning financial transactions that occurred during the first four years of operating activity for USD Motors is provided (see Table 2 below). These transactions show that on January 1, Year 1, USD Motors issued 140,000,000 shares of common stock for $140,000,000. The financial records also reveal that USD Motors bought an auto plant for $140,000,000 on January 1, Year 1. Note that the bottom row in Table 2 shows the balance sheet for USD Motors as of December 31, Year 4 which indicates that the book value (stockholders' equity) of USD Motors is $236,000,000 as of December 31, Year 4.

Table 1
USD Motors Income Statements
For the Years Ended December 31, Years 1-4

	Year 1	Year 2	Year 3	Year 4	Totals
Sales (all received in cash)	80,000,000	90,000,000	100,000,000	110,000,000	380,000,000
Expenses (all paid in cash)	-60,000,000	-65,000,000	-70,000,000	-75,000,000	-270,000,000
Depreciation Expense	-3,500,000	-3,500,000	-3,500,000	-3,500,000	-14,000,000
Net Income	16,500,000	21,500,000	26,500,000	31,500,000	96,000,000

Table 2
USD Motors Financial Transactions
For the 4 Years Ended December 31, Year 4

Transactions	Cash	Property, Plant, and Equipment (net)	Common Stock	Retained Earnings
Initial Public Offering	140,000,000		140,000,000	
Buy Property, Plant and Equipment	-140,000,000	140,000,000		
Sales (4 Years)	380,000,000			380,000,000
Various Expenses (4 Years)	-270,000,000			-270,000,000
Depreciation Expense		-14,000,000		-14,000,000
Balances 12/31/Year 4	**110,000,000**	**126,000,000**	**140,000,000**	**96,000,000**
Total Assets & Stockholders' Equity		**236,000,000**	**236,000,000**	

With this financial statement information, you will be able to make forecasts of the expected future incomes (or operating cash flows) of USD Motors over the next 20 years. For the purposes of this case, it is suggested using 20 years as the time period to use when student groups discount all the forecasted future net incomes (or operating cash flows) back to present value since the incremental present value of adding additional years (beyond 20 years) in a forecast would have little impact on the bid, as the present value factors for years greater than 20 years are very low.

As discussed below, it is suggested that groups use several approaches in developing a bid. By using different approaches, each group will in effect create several bids and each group will discuss within the group which "sealed" bid to submit to their professor near the end of this case exercise.

FIRST APPROACH – PRESENT VALUE THE SIMPLE AVERAGE OF FUTURE EARNINGS

With your first approach, we suggest the simplifying assumption that the net income each year would increase by a constant dollar amount each year over the next 20 years such that you can compute an average annual net income for USD Motors over the next 20 years. The average annual net income would be the Year 5 Net Income plus the Year 24 Net Income all divided by 2. This average Net Income value is then present valued by using a present value of ordinary annuity table.

The most recent earnings for USD Motors (for the year ended December 31, Year 4) was $31,500,000 and earnings have been increasing each year since Year 1. Each student group will take the income statement information from the previous four years to estimate the overall average net income for the next 20 years. Making this simplifying assumption allows the student groups to present value a single average earnings figure using present value of ordinary annuity tables. An annuity is a stream of payments that are equal in amount for each month/quarter/year etc. that is under examination. Students will need to multiply the annuity amount by the present value factor of an ordinary annuity (with an ordinary annuity it is assumed that the annuity payment will be made at the end of each month/quarter/year etc.).

To determine the present value factor for an ordinary annuity when the time period is 20 years, each student group will need to select an interest rate to discount the forecasted future net incomes in order to compute a present value of an ordinary annuity figure. If the risk of USD Motors is perceived to be low, the interest rate selected for present value purposes will also be low. Using a low interest rate will mean (other things being equal) that the bid will be higher as there is an inverse relationship between interest rates and present values. On the other hand, if the risk of USD Motors is perceived to be high, then a higher interest rate will be used for present value purposes. Using a high interest rate (other things being equal) will result in a lower bid given the inverse relationship between interest rates and present values. In other words, there is a logical trade-off that lower bids will come from student groups that forecast lower future earnings and/or that perceive higher risk associated with future returns.

Once you estimate a present value for these estimated future earnings, you will need to add the current Dec. 31, Year 4 cash balance of USD Motors (see Table 2 to find this balance) to determine your first bid. Note: Since USD Motors does not have any liabilities (as of Dec. 31, Year 4), there is no need to subtract existing Company liabilities when determining a bid.

SECOND APPROACH – PRESENT VALUE THE INDIVIDUAL FUTURE YEAR ESTIMATED EARNINGS

With this second approach, we suggest that students try to estimate the forecasted earnings for each year individually (for the next 20 years) and to calculate the present value of these earnings using Excel. Since yearly expected earnings will not all be the same, student groups will not be able to use ordinary annuity present value tables. However, students can use

Excel to present value each year's earnings separately and then provide a total present value amount.

Once the student groups have calculated the total present value for these estimated future earnings, they will need to add the current cash balance of USD Motors (as was done with the first approach) to the present value of estimated future earnings to develop a second potential bid.

If let's say that the estimated future earnings for USD Motors are listed in Column B (Rows 4-23) in an Excel Spreadsheet and assuming that a group decides on a 16% interest (i.e., discount) rate, here is the Excel formula for estimating the present value of future expected earnings:

=NPV(16%,B4:B23)

THIRD APPROACH – PRESENT VALUE OF YEARLY ESTIMATED OPERATING CASH FLOWS

For this third approach, we will consider the fact that investors are oftentimes more interested in operating cash flows (and less interested in accrual accounting earnings) when they try to establish a value for a business. Specifically, for this third approach students will estimate the future operating cash flows for USD Motors (for the next 20 years). To approximate forecasted operating cash flows, we suggest adding back depreciation expense to forecasted future earnings. Depreciation expense is added back to forecasted earnings because depreciation expense reduces accrual-based net income but is not an operating cash flow. It should be noted that Depreciation Expense for USD Motors was $14 million (per Table 2) for the 4-year period ending December 31, Year 4. Thus, USD Motors can be said to have incurred $3.5 million in annual depreciation expense (assuming the use of straight-line depreciation by USD Motors for financial reporting purposes) and this $3.5 million in depreciation expense each year needs to be added to the expected earnings each year (for the next 20 years) that was used with the second approach noted above.

Let's say that the estimated future earnings for USD Motors are listed in Column B (Rows 4-23) in an Excel spreadsheet and Column D shows the estimated future operating cash flows (after adding back the depreciation expense from Column C). Using the information in Column D, here is the Excel formula for estimating the present value of future operating cash flows--again using a 16% interest rate: =NPV(16%,D4:D23)

TEST THE REASONABLENESS OF YOUR BID

As part of the process of judgmentally determining a bid, each group should consider the reasonableness of their bid using some critical accounting ratios. It is suggested that you compute two accounting ratios for USD Motors and compare these ratios to benchmark data created by Reuters (or similar organizations). It is suggested that you compute the Price to Earnings Ratio and Market to Book Value Ratio for USD Motors, using your bid to establish a

Fair Market Value figure. Tables 1 and 2 provide the additional data needed to compute these ratios for USD Motors.

The P/E Ratio is determined by dividing the fair market value per share by the earnings per share. The total fair market value for USD Motors would be your group's bid. Taking the bid and dividing by USD Motors' 140 million outstanding shares of common stock (as of December 31, Year 4) would yield the Company's fair market value per share. Earnings per share is determined by dividing USD Motors' Year 4 net income (see Table 1) by the 140 million outstanding shares of common stock.

The Market to Book Value Ratio for USD Motors is determined by dividing the Company's overall valuation (based on your bid for USD Motors) divided by the Company's total stockholders' equity as of December 31, Year 4. The Company's total stockholders' equity can be found in Table 2.

TASK

Your instructor will likely provide additional, specific questions to speed you along the way to determining what your group's purchase bid will be.

WORKPLACE SKILL-DEVELOPMENT PERCEPTIONS OF PREVIOUS BUSINESS SCHOOL SERVICE-LEARNING STUDENTS

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ABSTRACT

As colleges and universities attempt to increase their societal contributions through community engagement efforts, service learning becomes a prime vehicle for enhancing outcomes in business schools. There is significant evidence that service learning positively supports the community and its non-profit organizations but the issue for business school administrators, faculty, and undergraduate students is that the value of service-learning experiences in the workplace following graduation is not well understood. That is, most business school service-learning research takes place before the student graduates. In this study, we utilize an interview protocol to explore how graduates from a private, eastern U.S. business school benefit from undergraduate service-learning experiences as they become workplace contributors. The findings document multiple connections between students' undergraduate service-learning experiences and their subsequent workplace success.

PROBLEM STATEMENT AND RESEARCH SIGNIFICANCE

Service learning is a teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities (Seifer & Connors, 2007). Much has been written to validate the pedagogical value of service learning including educational impact (Eyler & Giles, 1999; Grotrian-Ryan, Ryan & Jackson, 2016; Perry & Katula, 2001) and the student perspective (Astin, Sax, & Avalos, 1999; Caspersz & Olaru, 2017; Fullerton, Reitenauer & Kerrigan, 2015; Grotarian-Ryan et al, 2016; Newman & Hernandez, 2011). In addition, a number of business schools across the country employ service learning to enhance educational outcomes for undergraduates (US News and World Report, 2018). Currently, 359 campuses have received the Carnegie Community Engagement Classification, "an elective designation that indicates institutional commitment to community engagement by the Carnegie Foundation for the Advancement of Teaching" (Association of Public and Land Grant Universities, 2020).

As colleges and universities pursue increasing their societal contributions through public engagement efforts, service learning becomes a prime vehicle for enhancing outcomes:

> *"There is no doubt that the teaching tool commonly referred to as service learning—the practice of engaging students in real-world reciprocally based active and reflective experiences through programs and projects with service-oriented organizations in their local communities—has grown in prominence and application, nationally and internationally…*" (Kenworthy, 2010, p.3)

There is significant evidence that service learning positively supports the community and its non-profit organizations (Astin & Sax, 1998; Greenwood, 2015; Lamb, Swinth, Vinton & Lee, 1998; Yorio & Ye, 2012). Furthermore, students are interested in these types of experiences. According to The American Freshman: National Norms Fall 2015 survey, 74.6% of college freshmen rate helping others as a very important or essential personal objective (Eagan, Stolzenberg, Ramirez, Aragon, Ramirez-Suchard & Hurtado, 2014).

Business schools strive to prepare students to enter the workforce with the requisite skills and competencies that allow them to respond to a variety of organizational challenges, both internal and external in nature, playing a key role in educating the next generation of business and community leaders. In addition to achieving internal organizational goals, business organizations increasingly acknowledge and accept their role in the community, and may be engaged in serving the community in numerous ways. Govekar & Rishi suggest that "service learning has the potential to transform business undergraduate education" with its connection to real-world application and related career preparation (2007, p. 9). Offering service-learning experiences can create "increased legitimacy" for universities and increase student awareness of community needs (Boyle, 2004) and Andrews (2007) suggests that integration of service learning can "help universities and colleges achieve their objectives" by "creating stronger ties between school and community" as well as providing an opportunity for students to practice their skills (p. 24).

Previous studies also conclude students gain business skills through service-learning experiences (Caspersz & Oluru, 2017; Fullerton Et al, 2015; Madsen & Trumbull, 2006; McLaughlin, 2010; Salimbene, Buono, Van Steenberg Lafarge & Nurick, 2005).

Problem

A problem for business school administrators, faculty, and undergraduate students is that the value of service-learning experiences in the workplace following graduation is unknown. That is, most business school service-learning research takes place before the student graduates. This research gap can impact the growth, long-term effect, and value of service-learning opportunities in business schools and prevent employers from leveraging unique skills new employees with service-learning experience have. Researchers conclude that service learning better prepares students for their careers (Aldridge, Callahan, Chen, & Wade, 2015; Fullerton et al, 2015; Grotarian-Ryan et al, 2016), again from an undergraduate student perspective. While Newman and Hernandez (2011) surveyed students after they graduated, the survey tool used *suggested* skills students might have developed instead of the students indicating them.

There remains an opportunity in the scholarly service-learning conversation to understand *how* business school graduates benefit from service-learning experiences, from their perspective, as they become workplace contributors and whether service learning as a college student translates to a better-prepared professional. Exploring that opportunity, this research study focuses on the question, "How do business school graduates benefit from undergraduate service-learning experiences as they become workplace contributors?"

LITERATURE REVIEW

The review of the literature that follows demonstrates the importance of service learning and identifies an opportunity to understand service-learning workplace value from the perspective of business school graduates.

Service Learning

Experiential learning is based on the premise that, "Knowledge is continuously derived from and tested out in the experience of the learner" (Kolb, 1984, p. 27). "Service learning [is] a specific type of experiential learning in which students engage in activities that address human and community needs together with structured opportunities intentionally designed to promote student learning and development" (Jacoby, 1996, p. 5). A key construct of service learning is its focus on real problems that address human and community needs through service-learning projects. Service-learning courses support academic rigor, reciprocal learning, and civic learning, providing opportunities for students to engage in problem solving that creates a process for social change (Caspersz and Olaru, 2017), often with deeper learning than field experience (i.e., internships and cooperative education) provides due to its inclusion of competency development and reflection (Govekar & Rishi, 2007).

The initial development of business competencies may begin in high school, the business school, or the workplace. Organization and time management are competencies that are expected to be developed in high school (Page, 2017). Business schools are expected to develop high-level teamwork, communication, and problem-solving competencies (Tucker, 2014). Professional competency development including relationship management, negotiation, and data analysis are skills new employees develop and use as they enter the workplace (Bentley University, 2014; Economist Intelligence Unit, 2014).

Student Value

Service-learning experiences provide students with an opportunity to apply concepts learned in class and build work-related skills (Kenworthy-U'Ren, 2000). A recent mixed methods study found that business students who participated in service-learning projects that allowed them to apply business acumen developed practical and interpersonal skills (Caspersz & Olaru, 2017). In addition, the Caspersz and Olaru (2017) study found that students experience personal growth, learned practical workplace skills, and enhanced leadership skills. Enhanced communication skills (Fullerton et al, 2015; Madsen & Trumbull, 2006); strengthened organizational skills (Madsen & Trumbull, 2006); and, improved problem-solving skills (Madsen & Trumbull, 2006; Miller, 1994) were also noted in service-learning students based on research prior to graduation. Eyler and Giles (1999) reported that students enhanced critical thinking competency through service-learning experiences. Business students believe service-learning experiences enhanced their perception of how well the undergraduate college prepared them for work (Astin, Sax, & Avalos, 1999) and provided real-life insights that will help them in their professional lives (Phelps & Dostilio, 2008). What is critical to remember is that the previous findings are based on research conducted with students, prior to undergraduate commencement, and are not based on workplace perspectives regarding the value of service learning. That is, university business school faculty who employ service learning believe that they are better preparing students to enter and be successful in workforce, but that is unknown because the value

students, while in the workplace, attribute to undergraduate service-learning experiences is not clearly understood.

The value of service learning post-graduation, between three and 24 years after completing undergraduate studies, has been demonstrated to a limited extent. In 2019, Mitchell and Rost-Banik found that "…service-learning experiences informed alumni's perceptions of their career pathways" (p. 21). In terms of specific skills, a survey of 60 service-learning alumni said their communication (78.7%), team facilitation (91.8%), entrepreneurship (77.7%), mentoring (88.5%), and leadership skills (83.6%) were enhanced some or a lot by participating in service-learning experiences (Newman & Hernandez, 2011). The survey however, asked participants to reflect on what they had learned through service learning but not specifically if the skills had supported or enhanced career success. Service-learning students often developed project-specific skills like microeconomics, organizational ethics, and micro-lending (Grotarian-Ryan et al, 2016). While these studies provide post-graduate insight regarding service-learning educational contributions, the findings presented are not rooted in the workplace by former business school service-learning students. Determining the workplace value service learning has, from the perspective of former business school service-learning students now employed, is discovered via the qualitative research study that follows.

METHOD

Research design was based on an interpretive qualitative study focused on gathering information about a single concept (Merriam & Associates, 2002) which was used to explore the workplace value of service learning for business school students when they became full-time employees. Specifically, this qualitative study focused on skills developed through service learning that were deemed valuable by students now in the workforce. Telephone interviews determined how business school graduates benefitted from service-learning experiences as they became workplace contributors.

Sample and Context

The participants in this study earned their undergraduate business degrees from a mid-sized Catholic university (University) in the Northeast comprised of approximately 6000 undergraduate and 3000 graduate students. The University maintains an institutional focus on community engagement and holds the Carnegie Foundation for the Advancement of Teaching Community Engagement Classification. Service learning is a teaching method used throughout the University to develop meaningful community projects that support course learning objectives. The role of business school faculty included project scope development with the client and project oversight within their respective classes. The selection of service-learning projects for this study was based on providing a breadth of typical business experiences to enhance study validity and mitigate unwanted bias. Table 1 lists a description of each study project and community partner.

Table 1 **SERVICE-LEARNING PROJECTS**
Students developed a marketing plan and served food for a Community Health Services Catering Service which "provides low cost, high quality meals to the community" [Catering Service].
Students analyzed data collected by an organization that provides a motivational faith-based program for inmates designed to facilitate re-entry and reduce recidivism, and interpreted findings related to impacts services. [Inmate Organization]
Students formulated research questions, collected and analyzed data, and interpreted findings related to implementation of service-learning initiatives. [Service-Learning Initiatives]**.**
Students developed and executed social media marketing initiatives for a theater company, a source of ballet experiences for regional audiences. [Theater Company]
Students conducted research to develop marketing-related recommendations for a public market housing a variety of local retailers in one central location. [Public Market]
Students conducted research to develop a marketing plan for a zoo organization focused on conservation of endangered and threatened species. [Zoo]
Students analyzed data collected by an organization that provides independent living and life skills training programs for at-risk teens and young adults, and interpreted findings related to impacts of services. [Young Adult Organization]
Students conducted research to develop a marketing video designed to create awareness and interest for a community development corporation. [Community Development Corporation]
Students completed a marketing planning project for a fast-casual restaurant chain. [Restaurant Chain]

A sample size of 20 was deemed appropriate to achieve study goals (Gentles, Charles, Ploeg & McKibbon, 2015; Guest, Bunce & Johnson, 2006; Mason, 2010). Invitations were sent to fifty previous students who were business majors and participated in a single service-learning project during their junior or senior year of study. Utilizing a qualitative research convenience sample approach (Merriam, 2009), the first 20 individuals who responded to the invitation participated in the study (see Table 2).

Table 2
PARTICIPANTS

Gender	Grad	Role	Project	Project Client
Male	2015	Account Manager	2014	Catering Service
Female	2015	Global Education Consultant	2014	Catering Service
Male	2015	Paid Search Analyst	2014	Catering Service
Male	2015	Salesperson	2014	Catering Service
Male	2015	Account Manager	2015	Public Market
Female	2015	Law Student	2015	Public Market
Female	2013	External Affairs Analyst	2014	Theater Company
Male	2015	Business Account Executive	2015	Public Market
Female	2015	Assistant Resident Director	2013	Service-Learning Initiatives
Male	2013	Category Manager	2011	Young Adult Organization
Female	2016	Associate Business Advisor	2014	Inmate Organization
Male	2016	Cybersecurity Sales Specialist	2014	Inmate Organization
Male	2015	Former Marketing Manager	2013	Inmate Organization
Female	2015	Internal Auditor	2013	Service-Learning Initiatives
Male	2013	Marketing & Account Manager	2011	Young Adult Organization
Male	2013	Associate Attorney	2015	Zoo/Restaurant Chain
Male	2016	Real Estate Associate	2014	Inmate Organization
Female	2013	Associate Inventory Planner	2011	Young Adult Organization
Male	2013	Senior Associate	2011	Young Adult Organization
Female	2013	Marketing Associate	2011	Community Development Corporation

Data Collection and Protocol

Semi-structured phone interviews which averaged one-half hour took place to gather data and answer the research questions (Merriam & Associates, 2002). An interview protocol was developed and used during the research process. The interview protocol was influenced by existing literature and the research goals of this study. Questions focused on the participant's perceptions regarding the role their service-learning experiences played in preparing them with workplace skills and included: What did the experience entail? What was the deliverable/outcome? Who was involved in the experience? What was your role? What challenges were overcome? What were key learnings from the experience? What did you learn that you applied at work? What did the service-learning experience provide that has impacted

your success either positively or negatively? During the interviews, the authors used additional probes to uncover more information from participants. All interviews were recorded after receiving participant consent and were subsequently transcribed.

Data Analysis

All data from the interviews were analyzed, using NVivo software, following transcript receipt for each interview. Utilizing thematic analysis (Boyatzis, 1998), transcripts were scanned and data were analyzed continually throughout the interview process to identify themes or patterns that included ideas, concepts, behaviors, interactions, and phrases (Creswell, 2012). A code was then assigned to each piece of data to label each for easier organization and retrieval. Wholly similar statements, thoughts, or ideas were assigned the same code. Code and data analysis were used to understand the importance of responses and the relationships between codes and data. The final code groups were categorized, combined when appropriate, and used as evidential input to create the study's research themes. As the themes, patterns, connections and relationships were identified, meaning and significance was determined to generate study findings.

Verification

To support the trustworthiness, validity, and reliability of this research project, verification, "the process of checking, confirming, making sure, and being certain" (Mores, Barrett, Mayan, Olson & Spiers, 2002, p. 17) was conducted. Mores et al. (2002) propose that five strategies be used to verify qualitative research (see Table 3).

Table 3
Verification Approach

Verification Strategy	Research Project Alignment
Methodological coherence ensures alignment between the research question and the method throughout the research project (Mores et al, 2002).	The research method employed, which aligned well with the research question, was not altered during the project.
Appropriate sample is indicative of participants having knowledge about the research topic (Mores et al, 2002).	The sample selected for this project had recent experience with service learning as well as job search and workplace experience.
Concurrent collection and analysis of data becomes, "the essence of attaining reliability and validity" (Mores et al, 2002, p.18).	Data analysis began immediately following the first interview and continued throughout the data collection process.
Thinking theoretically requires gradual progress while constantly checking and rechecking resulting in a solid foundation (Mores et al, 2002).	Concurrent data collection and analysis while purposefully thinking through thematic possibilities by considering micro and macro perspectives provided the essence of theoretical thinking for this project.
Theory development is to move deliberately between the data and the theory and concepts that arise (Mores et al, 2002).	The authors moved between the data and thematic outcomes collaboratively through a series of focused discussions.

In addition, member checking (Creswell, 2012) and peer debriefing (Merriam & Associates, 2002) were employed. Member checking was accomplished by forwarding themes to participants to gather feedback. There were no negative responses to the themes presented or requests for changes. Comments including, "I think you got it exactly right!", "The findings described in the email make sense and align closely with my personal experiences with service learning", and "I would agree with the findings" were received. Peer debriefing took place with multiple faculty, who use service learning as a pedagogy, to gather feedback on the research process and appropriateness of the findings. Feedback from peer reviewers resulted in sharpening the problem statement, narrowing the study to the student perspective only, and expanding the data analysis description.

KEY FINDINGS

The research findings identify a series of business competencies students develop and refine through service-learning experiences as well as how students use these business competencies and service-learning experiences to enhance workplace success. Conclusively, service-learning engagement as a college student translates to a better-prepared professional. In their service-learning experiences, students refined or developed business competencies. During projects, students utilized organizational skills, communicated with clients, and collaborated with others to solve problems. They used critical thinking skills to complete projects and manage college and project accountabilities.

Organizational skills

The students often began projects by refining their organizational skills to clarify expectations and reduce ambiguity. After students had a strong sense of what they were going to do, they organized the work to support client deliverables:

> *"…organizing your thoughts, because I know even at work, people will say, Can you pull together this report and tell me - come up with a conclusion? And you have to take a step back and organize the data, organize your thoughts, to start before you can start doing anything else. … We had to organize everything first before we could start analyzing it."*

Once the work was underway, students also used their organizational skills to help clients:

> *"We were able to help that company kind of organize their things, get them on track and help them be more productive … and do their job better."*

Organizing work to achieve successful project outcomes also required significant time management expertise primarily as a result of the limited project duration of one semester, busy student schedules, and dynamic project requirements:

> *"Also just trying to work within our limited class time. … We actually began to find that the scheduled class time … wasn't really the most convenient for what we needed to be doing to meet with people, to go up into the neighborhood to talk to neighbors. So, I guess scheduling was a big challenge here."*

As students settled into well-organized project work using a timeline that supported conclusion or end of the semester hand-off, competencies they were learning about in business school were required.

Teamwork, communication, and problem-solving skills

Two to five students worked together and employed business skills including teamwork, communication, and problem-solving to move projects forward. Collaboration, mutual support, and consistently working well together were oft-mentioned teamwork requirements. Working well together on projects meant leveraging individual skills and diverse opinions as well as sharing responsibilities to enhance team work and collaboration: "I think we all worked very well together as a group … you do get a better end goal and end product because each person contributes specific parts, and when you combine it together."

Students also consistently refined their communication skills as they completed their project work:

> *"…because that was probably my first real world experience where I was communicating with an actual client … so the application [was] just a preview into what is going to happen in the real world. … having communication definitely was a huge attribute to our success."*

Delivering client presentations was another form of client communication students practiced as in this example,

> *"Being able to present to the Restaurant Chain team, that was a good learning experience as far as marketing is concerned because when you're in marketing, you do have to go and tell people, "This is something that you're not necessarily doing great. This is where you could improve." Being able to do that before we left college has been really beneficial for me in the two years since I've been out of school."*

Refining problem-solving skills was also needed to successfully complete projects. Some of the issues that required enhanced problem-solving capability were dynamic client expectations, scheduling difficulties, limited financial support, and limited resource availability:

> *"…guess the idea of being able to try to work around issues that you might have with a set of data that you have to look at, if you're trying to figure out a solution to a general problem that you have, and then trying to figure out how to set up parameters to try to find a solution to something."*

Similarly,

> *"… there isn't just one way to do it like here is your business model and here is what everybody should follow basically but it doesn't mean everybody should do that … there's a million ways to do it and do it differently and better and there's ways to do it worse that's always a game you play trying to figure out what's the best approach."*

As the students refined competencies introduced to them in high school and business school, they began to develop professional competencies required in the workplace including relationship management, negotiation, and data analysis.

Relationship management, negotiation, and data analysis skills

Students were accountable for ensuring successful project outcomes regardless of what challenges arose, which meant building and maintaining positive relationships with clients like this example:

> *"This client actually was a bit combative and not very happy with anything that the class or students were doing and made it well known to us in the middle of class when he came in for our presentation."*

Likewise:

> *"…it was difficult for us trying to get answers from them or get appointments because [we] never really knew who to speak with or were always being bounced around from one person to another."*

These relationship management activities often required negotiation skills, which students used with all stakeholders to create viable project scope and valuable project outcomes:

> *"… as to what they really wanted us to work on. … twenty different ideas come at you. … we understand the need but based on what we think we [can] feasibly accomplish in this amount of time and within this amount of budget … we have to [do] this idea, not that idea."*

As projects progressed, students leveraged relationship management skills and negotiated again with stakeholders as project changes were requested:

> *"it's okay to explain to them ... that it's okay to not be able to do everything. It's okay to be able to say, "No, we can't do that.""*

While students were working to produce mutually beneficial outcomes, project-specific competencies like data analysis were often required:

> *"The challenge itself of just going through the data, kind of not understanding what you're looking at until you put it together succinctly was definitely the biggest challenge."*

The students conveyed examples of how they used their newly acquired data analysis competency in their profession,

> *"How do I apply the knowledge that I learned in that service learning and use that to get them more leads through my marketing campaigns, through my cold-callings, through actually going and visiting them in person? I used the data-driven approach that was developed … I was able to put that to good use and eventually help drive my lead generation in that most recent job that I had."*

Data analysis is one example of a professional competency students developed through their service-learning projects. Depending on the focus of the service-learning project, other skills like strategic planning, website development, or employee engagement could be developed and refined.

As the service-learning projects unfolded, students used both competencies they began learning in high school and those they acquired in business school. The professional competencies and project-specific skills they developed before they entered the workplace were

significant to this research. Each of these competencies helped students accelerate workplace contributions.

Career success

All participants spoke of the positive impact the service-learning experience had on enhancing their career success. By having challenging experiences, working hard, and producing client-ready deliverables, students experienced a quasi-workplace environment and met client requirements as they would be expected to do in professional roles. Gaining this experience as an undergraduate allowed them to more quickly meet workplace expectations upon graduation:

"So, that's client service, so, it's kind of already being prepared to, you know, deal with potential conflicts or the constraints of various [projects]. Learning brainstorming for ideas, how to kind of work through that in a group. And, I mean, those are all things that tie really closely to the work I do now."

The structure of typical classes may give students the incorrect perception that work is accomplished by using a limited number of best practices. Service learning allowed students to understand that this isn't always the case:

"So, I thought that was my biggest take away from it is that you just learn things don't have to be done just one way you can find a million other ways to do a project and execute it better than what it is."

In some cases, service learning impacted the students' career choices as their experiences exposed them to fields not covered in their coursework:

"It changed the direction of where I was heading just because it was something that I really wanted to explore … it was new and different to me. I ended heading in the paid search route …"

One participant observed parallels between what he did with his client and running a small business:

"I'm an agent aspirant in a very big insurance company. All of its local branches are independently run, so essentially each agent is its own business … So, seeing that kind of … that side of the business and having that background with the Public Market, it's really given me appreciation for being stingy where you need to be stingy and putting in more effort in marketing and exposure in other places in the most direct way possible."

Service-learning students were able to derive multiple workplace benefits from their experiences making the transition into the workplace easier and more successful. Service learning is a valuable pedagogical technique for developing workplace readiness.

CONCLUSION AND IMPLICATIONS

According to Santiago Iniguez de Onzono, chair of the AACSB (Association to Advance Collegiate Schools of Business) Committee on Issues in Management Education, "Business education has changed dramatically in the past decade, and schools are facing increasing pressure to drive positive economic and social impact" (AACSB, 2016). Given this AACSB

position, offering service-learning experiences can drive both the economic impact of business school education and the social impact, reflected in the community outcomes service-learning students deliver as they bolster their workplace readiness. Our discovery of numerous connections between students' service-learning experiences and their subsequent workplace success creates a significant opportunity for business schools to combat the pressures Onzono articulates. This study succeeds in providing more evidence as to the value of service-learning pedagogy in business schools by characterizing the benefits of service-learning experiences for students in the workplace.

This study produced key findings that extend existing university service-learning literature to include workplace impact from the perspective of previous business school service-learning students now in the workplace. Existing literature underscores the value of service-learning experiences in building business skills based on studies with students prior to undergraduate commencement (Caspersz & Olaru, 2017; Grotarian-Ryan et al, 2016; Perry & Katula, 2001). This is important given workplace interest in students who have service-learning type experiences (Bentley University, 2014; Economist Intelligence Unit, 2014; Hart Research Associates, 2015). However, existing studies don't expound on why there is workplace interest, noting only that it is valued. In this study, we find that service-learning experiences help students develop and refine business competencies that accelerate and enhance workplace success thereby leveraging service learning to be a better-prepared professional.

Business Skills

The study participants conveyed that their service-learning experiences enhanced skills they use frequently in the workplace including organization skills, time management, teamwork, communication, problem-solving, relationship management, negotiation, and data analysis. It is compelling to see how these findings correspond with the workplace skills business schools are said to develop in students through service learning (see Table 4).

Table 4
RESEARCH ALIGNMENT

Service-Learning Skill	Author(s)	Research Perspective	This Study
Communication	Fullerton et al, 2015; Madsen & Trumbull, 2006	Pre-Graduation	Supported
Organizational	Madsen & Trumbull, 2006	Pre-Graduation	Supported
Problem solving	Madsen & Trumbull, 2006; Miller, 1994	Pre-Graduation	Supported
Critical thinking	Eyler & Giles, 1999	Pre-Graduation	
Interpersonal	Caspersz & Olaru, 2017	Pre-Graduation	
Leadership	Caspersz & Olaru, 2017	Pre-Graduation	
Communication	Newman & Hernandez, 2011	Post-Graduation	
Entrepreneurship	Newman & Hernandez, 2011	Post-Graduation	
Leadership	Newman & Hernandez, 2011	Post-Graduation	
Mentoring	Newman & Hernandez, 2011	Post-Graduation	
Negotiation	New finding	Post-Graduation	Supported
Project-specific	Grotarian-Ryan et al, 2016	Post-Graduation	Supported
Relationship management	New finding	Post-Graduation	Supported
Team facilitation/work	Newman & Hernandez, 2011	Post-Graduation	Supported
Time management	New finding	Post-Graduation	Supported

From a business school faculty and researcher perspective, it is confirming and satisfying to see that key business skills including communication, organization, problem-solving, teamwork, and project-specific skills are developed or refined through service-learning experiences. It's also important to understand that these skills positively impact the success of new employees in the workforce. More compelling is the lack of alignment between what previous research has shown to be beneficial from a service-learning business skills development perspective and what new employees with service-learning experience indicate has value in the workplace. Specifically, there is no alignment among critical thinking, interpersonal, communication, entrepreneurship, leadership, and mentoring skills thought to be developed from service-learning experiences and those skills new employees in the workplace say accelerate and enhance workplace success. This lack of alignment represents a significant gap between the skills believed to be developed during service learning and those deemed valuable in the workplace by previous service-learning students.

The disconnect between existing literature and this study's findings indicate negotiation, relationship management, and time management are developed or refined during service-learning experiences and that these business skills have definitive value in the workplace. These three business skills do not appear in the existing service-learning literature, yet participants in this study associate acquisition of these workplace-valuable business skills with their business school service-learning experiences. This is important because new employees typically learn and apply these skills in the workplace and employers value them (Bentley University, 2014; Economist Intelligence Unit, 2014). When previous service-learning students enter the workforce with these business skills they accelerate and enhance workplace success due to lack or mitigation of related skill-development learning curves.

Of equal importance is the disconnect between what previous literature indicates service learning delivers in the form of skill development and what new employees with service-learning experiences confirm adds workplace value. Service-learning literature from both pre-graduation and post-graduation perspectives reports that service-learning students acquire or enhance critical thinking, interpersonal, communication, entrepreneurship, leadership, and mentoring skills. While it is conceivable that these skills are indeed developed through service-learning experiences and used later in workplace settings, the question remains as to the efficacy and value of these skill developments in business schools. It is quite possible that development of these skills during service-learning experiences is insufficient to impact workplace success. If true, this indicates a pedagogical opportunity to enhance focus and development of these business skills such that they generate more immediate workplace value.

Additional Business Skill Development

Learning about negotiation supports previous literature that confirms negotiation skill can be acquired via an undergraduate service-learning course (Kenworthy, 2010). Study participants indicated the value of being able to apply these professional competencies as they entered the workplace. Participants spoke highly of their ability to use their negotiation skills as new employees. Their experiences align well with the work of Grover and Lynn (2012) who indicate four key attributes of negotiators:

> *"seeking to understand and appreciate the other party's interests and needs; willingness to honestly volunteer information about their own interests and needs when necessary to expand value; willingness to exert the effort, patience and persistence necessary to achieve a negotiation outcome that maximizes value; and creative problem-solving essential to the formation of high value agreements acceptable to all negotiating parties" (p. 7).*

Participants conveyed the ease with which they negotiated as well as how frequently their proven negotiation skills were used.

The ability to apply relationship management skills early in career accelerates the significant value that Liden, Wayne, and Sparrowe (2000) associate with strong workplace relationships. Further, the ability to develop strong relationships enhances organizational commitment, change readiness, and employee satisfaction (Madsen, Miller, & John, 2005). Based on their service-learning experiences, participants indicated the development and

maintenance of strong, mutually-beneficial relationships made them more ready for change and increased satisfaction with their work.

Project-specific skills like data analysis add dimension to service-learning students who bring these unique skills to their employers, allowing them to take on work some other new employees cannot. In alignment with Grotarian-Ryan et al (2016), the ability to apply professional competencies immediately upon entering the workplace provides both employees and employers with significant value. Data analysis surfaced during this study because some of the service-learning projects involved investigating data. It is logical to assume that other project-specific competencies would develop from other project foci and enhance early career success.

Career Success

The service-learning projects that participants completed prepared them to be more successful as new employees in the workplace. This underscores employers' belief that requiring students to complete significant applied learning projects in college improves both the quality of learning and the quality of graduates' career preparation. (Hart Research Associates, 2015). This study's findings align with Phelps and Dostilio (2008) in that service-learning experiences provide real-life insights that help business school graduates in their professional lives. This research extends that work with new understanding of the benefit of service-learning experience to create client-ready deliverables. The client-ready deliverables represent tangible, workplace-quality output for the benefit of the client. As such, the client-ready deliverables are like requirements new employees produce in the workplace.

This study confirms Astin and Sax' (1998) contention that students believe their service-learning experiences have a strong effect on the perception that college has prepared them to excel in the workplace. As service-learning students work through the ambiguity associated with service-learning projects, they are prepared to handle the workplace ambiguity they will encounter. Similarly, they are ready to overcome workplace project constraints just like they did in their service-learning efforts. The non-linear feature of service-learning projects is also found in organizations, and service-learning students leverage their expertise in such situations to ensure workplace success. These specific service-learning examples of preparation for success in the workplace represent valuable additions to the literature.

RECOMMENDATIONS

Implications for faculty point toward supporting student learning related to the professional competencies that are developed by performing service-learning projects. The curriculum that supports service learning should include organization, time management, teamwork, communication, problem-solving, relationship management, and negotiation. Further, faculty should understand that unique professional skills are gained through service learning. Of greater pedagogical impact is the need to reconsider how the development of critical thinking, interpersonal, communication, entrepreneurship, leadership, and mentoring skills is supported during service-learning experiences. There is a need to make tighter connections between the development of these skills and potential workplace applications, likely through focused attention on the application of these skills in service-learning experiences.

Given the workplace value of service-learning experiences, university administrators should increase these opportunities for students. Faculty can support this goal by helping university administrators understand the workplace benefits of service learning by showcasing the results of student projects. This could be accomplished by inviting school leadership to student presentations, hosting poster sessions, and tracking student placement data of service-learning students compared with non-service-learning students.

Workplace practitioners should recognize that new employees coming to their organization with a service-learning experience likely have a greater ability to perform certain tasks. Thus, employers should ensure that new employees with service-learning experience are recognized for their ability to more quickly meet expectations. Given the post-collegiate value of service-learning experience, workplace practitioners may be able to assign some higher-level work to new employees with service-learning experience which can serve to accelerate their career success.

Limitations

In terms of potential study limitations, transferability amongst recent business school undergraduates with service-learning experience should be significant. Transferability from the sample to non-business school undergraduates with service-learning experience should be considerable but is not validated in this study. Since this research took place in the United States, transferability to undergraduates beyond its borders should be considered based on similarity of service-learning experiences and work settings. Service learning provides an opportunity for enhancing outcomes for students while increasing societal contributions that is accessible both by private and public universities. This study occurred through a private university that provides support for service learning and community engagement. While there is university support for service learning and community engagement, these service-learning projects were primarily faculty-driven thus enhancing transferability even among those institutions that do not provide similar levels of support. Potential biases include author interest in service learning as well as participants who responded to interview requests because they had positive service-learning experiences. The aforementioned biases are common in qualitative research due to the impracticality of large sample sizes found in most quantitative studies.

Future Research

This study provides insight into the value of service learning as undergraduates transition from academia to the workplace. The opportunity exists for these findings to be explored quantitatively using this study as a basis for developing surveys and subsequent analysis. The larger participant numbers associated with quantitative research, as well as the potential use of a control group, can promote additional understanding of the workplace impact of positive and negative service-learning experiences. While this research was purposefully limited to a United States business school setting, expanding the setting to additional business schools and international venues has merit.

Additional research may include team and individual-based sampling to understand how team dynamics in service learning influence workplace success. Types and durations of service-learning projects can also be considered. For example, the workplace value of multi-day, semester, and multi-semester service-learning projects may be analyzed. A longitudinal approach could be taken to re-interview participants periodically to determine long-term service-learning value in the workplace.

REFERENCES

AACSB International. (2016). AACSB announces collective vision for the future of business education. Retrieved from http://www.aacsb.edu/newsroom/2016/4/aacsb-announces-collective-vision-for-the-future-busines-education

Association of Public and Land Grant Universities. (2020). 2020 Carnegie Community Engagement Classification Recipients Announced. Retrieved from https://www.aplu.org/news-and-media/blog/2020-carnegie-community-engagement-classification-recipients-announced.

Aldridge, R., Callahan, R. A., Chen, Y., & Wade, S. R. (2015). Income tax preparation assistance service-learning program: A multidimensional assessment. *Journal of Education for Business*, 90(6), 287-295.

Astin, A. W., & Sax, L. J. (1998). How undergraduates are affected by service participation. *Higher Education*, Paper 7.

Astin, A. W., Sax, L. J., & Avalos, J. (1999). Long-term effects of volunteerism during the undergraduate years. *Review of Higher Education*, 22(2), 187-202.

Bentley University. (2014). The preparedU project: An in depth look at millennial preparedness for today's workforce. Waltham, Massachusetts: Bentley University. Retrieved from https://www.bentley.edu/files/prepared/1.29.2013_BentleyU_Whitepaper_Shareable.pdf

Boyatzis, R. E. (1998). Transforming qualitative information: Thematic analysis and code development. Thousand Oaks, CA: SAGE.

Boyle, M. E. (2004). Walking our talk: Business schools, legitimacy, and citizenship. Business & Society, 43, 37-68.

Caspersz, D., & Olaru, D. (2017). The value of service learning: The student perspective. *Studies in Higher Education*, 42(4), 685-700.

Creswell, J. W. (2012). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (4th ed.). Boston: Pearson.

Eagan, K., Stolzenberg, E. B., Ramirez, J. J., Aragon, M. C., Ramirez-Suchard, M., & Hurtado, S. (2014). The American freshman, national norms, fall 2014. Los Angeles: Higher Education Research Institute, UCLA.

Economist Intelligence Unit. (2014). Closing the skills gap: Companies and colleges collaborating for change. Retrieved from https://www.luminafoundation.org/files/publications/Closing_the_skills_gap.pdf.

Eyler, J., & Giles, D. E. (1999). Where's the learning in service learning? San Francisco: Jossey-Bass.

Fairfield, K. D. (2010). Growing up and growing out: Emerging adults learn management through service learning. *Journal of Management Education*, 34(1), 113-141.

Fullerton, A., Reitenauer, V. L., & Kerrigan, S. M. (2015). A grateful recollecting: A qualitative study of the long-term impact of service learning on graduates. *Journal of Higher Education Outreach and Engagement*, 19(2), 65-92.

Gentles, S. J., Charles, C., Ploeg, J., & McKibbon, K. (2015). Sampling in qualitative research: Insights from an overview of the methods literature. (No. 20(11)). *The Qualitative Report*. Retrieved from http://nsuworks.nova.edu/tqr/vol20/iss11/5

Govekar, M. A., & Rishi, M. (2007). Service learning: Bringing real-world education into the B-school classroom. *Journal of Education for Business*, 83(1), 3-10.

Greenwood, D. A. (2015). Outcomes of an academic service-learning project on four urban community colleges. *Journal of Education and Training Studies*, 3(3), 61-71.

Grotrian-Ryan, S., Ryan, K., & Jackson, A. (2016). Instilling service learning to undergraduate business students: A case study approach to understanding business-related concepts with the use of kiva. *Journal of Education and Learning*, 5(1), 104-113.

Grover, R. A., & Lynn, D. (2012). Impact of collaborative leadership training on negotiation skill development. *Competition Forum*, 10(2), 5-14.

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1), 59-82.

Hart Research Associates. (2015). Falling short? college learning and career success. (). Washington, DC: American Association of Colleges and Universities. Retrieved from http://www.aacu.org/sites/default/files/files/LEAP/2015employerstudentsurvey.pdf

Jacoby, B., & Associates, a. (1996). Service learning in higher education: Concepts and practices. The Josey-Bass higher and adult education series. San Francisco: Josey-Bass. Retrieved from

http://ezproxy.lib.uconn.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=ED399914&site=ehost-live

Kenworthy, A. L. (2010). Service learning and negotiation: An educational "Win-win". *Journal of Management Education*, 34(1), 62-87

Kenworthy-U'Ren, A.L. (2000). Management students as consultants: A strategy of service learning in management education, working for the common good. *Concepts and Models for Service learning in Management*. 55-68.

Kolb, D. A. (1984). Experiential learning: Experience as the source of learning and development. Englewood Cliffs, N.J.: Englewood Cliffs, N.J.: Prentice-Hall.

Lamb, C. H., Swinth, R. L., Vinton, K. L., & Lee, J. B. (1998). Integrating service learning into a business school curriculum. *Journal of Management Education*, 22(5), 637.

Liden, R. C., Wayne, S. J., & Sparrowe, R. T. (2000). An examination of the mediating role of psychological empowerment on the relations between the job, interpersonal relationships, and work outcomes. *Journal of Applied Psychology*, 85(3), 407-416. doi:10.1037/0021-9010.85.3.407

Madsen, S. R., Miller, D., & John, C. R. (2005). Readiness for organizational change: Do organizational commitment and social relationships in the workplace make a difference? *Human Resource Development Quarterly*, 16(2), 213-234.

Mason, M. (2010). Sample size and saturation in PhD studies using qualitative interviews. Forum: *Qualitative Social Research*, 11(3)

McLaughlin, E. (2010). The "real-world" experience: Students' perspectives on service-learning projects. *American Journal of Business Education*, 3(7), 109-118.

Merriam, S. B. (2009). Qualitative research: A guide to design and implementation. San Francisco: Jossey-Bass.

Merriam, S., & Associates. (2002). Qualitative research in practice. examples for discussion and analysis. (First ed.). San Francisco: Jossey-Bass.

Miller, J. (1994). Linking traditional and service-learning courses: Outcome evaluations utilizing two pedagogically distinct models. *Michigan Journal of Community Service Learning*, 1(1), 29-36.

Mitchell, T. D. & Rost-Banik. C. (2019). How sustained service-learning experiences inform career pathways. *Michigan Journal of Community Service Learning*, 25 (1), 18-29.

Mores, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods*, 1(2), 13-22.

Newman, C., & Hernandez, S. (2011). Minding our business: Longitudinal effects of A service-learning experience on alumni. *Journal of College Teaching and Learning*, 8(8), 39-48.

Page, C. (2017). Top 10 skills for high-school students. Retrieved from https://www.familyeducation.com/school/high-school-milestones-obstacles/top-10-skills-high-school-students

Perry, J. L., & Katula, M. C. (2001). Does service affect citizenship? *Administration & Society*, 33(3), 330-365.

Phelps, A. L., & Dostilio, L. (2008). Studying student benefits of assigning a service-learning project compared to a traditional final project in a business statistics class. Journal of Statistics Education, 16(3)

Salimbene, F. P., Buono, A. F., Van, S. L., & Nurick, A. J. (2005). Service learning and management education: The Bentley experience. *Academy of Management Learning & Education*, 4(3), 336-344.

Seifer, S. D., & Connors, K. (2007). Community campus partnerships for health. faculty toolkit for service learning in higher education. Scotts Valley, CA: National Service-Learning Clearinghouse.

Tucker, L. (2014). Why study business? Retrieved from https://www.topuniversities.com/courses/business-management-studies/why-study-business

Yorio, P. L., & Ye, F. (2012). A meta-analysis on the effects of service learning on the social, personal, and cognitive outcomes of learning. *Academy of Management Learning & Education*, 11(1), 9-27.

RESPONDING TO GLOBALIZATION AND THE GROWTH OF PROJECT-BASED WORK: AN INTERNATIONAL PROJECT MANAGEMENT CURRICULUM

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ABSTRACT

Project management standards contribute to some of the most productive business capabilities for gaining organizational efficiencies and implementing strategic plans. These standards feature processes general to the overall discipline of project management and specialized knowledge areas such as program management, risk management, quality management, business analysis, and agile development. The growing global demand for project managers suggests a need to develop a curriculum that builds individual and organizational capacity to lead international projects. Human resource competency may be the most critical component for international capability development, and a vetted training and development curriculum may accelerate the international competencies of project managers. As companies invest in this manner, they empower project managers with the knowledge to understand their international business environments more effectively, thus providing organizational capabilities to reduce the liability of foreignness more quickly in their project operations. The exploratory study discussed here addressed this opportunity by investigating the applicability of established international business (IB) learning objectives as components of an international project management (IPM) instructional curriculum. The outcomes of this study identify a body of knowledge for international project management that may reduce an organization's liabilities of foreignness more effectively. Working project managers with at least three years of managing international projects were surveyed about the importance of international business concepts to successfully managing international projects. Results provide a framework that enables companies to develop the skills and knowledge of their project management talent and consequently gain needed capabilities for their success in international project management. Project managers wishing to strengthen their international project management competencies or organizations who desire to reduce the perceived liabilities of foreignness will find this research beneficial to enable them to deliver successful projects globally.

Keywords*: project management, international business, graduate curriculum*

INTRODUCTION

The Project Management Institute (www.PMI.org), a global body supporting the profession of project, program, and portfolio management, estimates accelerating demand for project managers that will exceed 88 million individuals globally by 2028 (Project Management Institute, 2017). To meet this demand, companies must invest in project personnel recruitment, training, and development to realize a competitive depth of capabilities and PM processes. Their managers today require skill sets for more agile, project-focused, and internationally oriented work than ever before. As globalization pressures strategic business priorities, decision-makers rely on project-management processes to internationalize their business capabilities more effectively (Luo, 2000; Schoemaker et al., 2018). Project managers develop necessary knowledge or skillsets from on-the-job experience coupled with continuing education often delivered through external providers such as universities, technical institutions, and contracted training providers. Employers frequently gauge individual project manager competencies by an individual's stock of professional certifications that reflect various domains of knowledge critical to the well-being of their organizations.

Currently, opportunities for acquiring international project management certification are limited (with one exception: the International Association of Project Managers has recently launched the Certified International Project Manager, (IAPM, 2020)). However, successful international business activities require understanding global and country-specific factors that reduce foreign exposure risk. Sapienza et al. (2006) demonstrate that success in multinational activities results from firms developing explicit international business capabilities that address their unique operational environments. Successful international expansion efforts include an organizational focus on possessing distinctive resources, allocating and deploying those resources as capabilities, and upgrading those capabilities through dynamic learning (Luo, 2000). One international capability comprises project management processes to develop and deliver products, services, or technologies across national boundaries (Midler, 1995). Effective international project management capabilities will likely require robust investment in the training, development, and certification of necessary human resources that draw upon external vendors to supply expert knowledge in this field.

Although PM standards have compensated for specific contexts such as health care or the agile principles of software development, international projects are a lesser-developed context that presents a further opportunity for growth. Despite this need, traditional PM training focuses on generalized processes of technical expertise in managing projects rather than on specialized contexts like international business (Berggren & Söderlund, 2008; Ewin et al., 2017; Khodeir, 2018). Further, standard PM textbooks or online consultant blogs include international project management as a single section or a chapter, with a few notable exceptions (e.g., Cleland & Gareis, 2006; Köster, 2010). Additionally, most research on teaching PM focuses on building general PM knowledge and skills (Abushammala, 2019; Berggren & Söderlund, 2008; Khodeir, 2018; Law, 2019; Markham et al., 2017) rather than focusing specifically on the unique factors of international project management.

Therefore, this article explores the use of international business learning objectives to propose a similar body of knowledge for international project management. The concept of liability of foreignness will be introduced as the theoretical framework for the study, followed by a discussion of the methodological approach used. Data will be analyzed to investigate the usefulness of international business knowledge as a source for delivering successful international projects. Further, the authors propose a graduate certificate for international project management that may help project managers strengthen their ability to manage international projects effectively.

THEORETICAL FRAMEWORK

The need for internationalized project management capabilities can be explained theoretically through the liability of foreignness (LOF) framework (Hymer et al., 1976; Zaheer, 1995). This framework justifies learning investments as prerequisites for reducing the uncertainty and risk of organizations operating in foreign or international scenarios (Brady & Davies, 2004; Petersen & Pedersen, 2002). Liability of foreignness addresses the unique category risk newcomers face to internationalization as opposed to those more experienced in cross-border operations or those more familiar with the idiosyncrasies of native markets. Less internationally seasoned competitors are burdened with additional risk or production costs due to increased uncertainty or ambiguity of cross-border situations in which they operate. The burden is particularly intense for early movers to specific locations and the general internationalization process. Liability of foreignness points out the disadvantages to early movers vis-à-vis incumbents who enjoy familiarity, cultural likeness, and longer-term relationships within their native environments. LOF further argues that strategic information gathering and accelerated learning by newcomers can reduce this imbalance more quickly and effectively. Specific LOF risk factors noted by researchers include environmental unfamiliarity due to cultural, political, and economic differences, international coordination costs (Zaheer, 1995), disadvantages in host country capital markets (Aliber, 1970), and cultural differences and multinational enterprise spatial remoteness between parent and subsidiary (Matsuo, 2000). Johanson and Vahlne (1977, 2003) noted that LOF stemmed from a multinational enterprise's "psychic distance" between home and host country factors that elevate the uncertainty and ambiguity related to foreign operations. They also discussed the relational liability of foreignness costs due to a firm's "insider vs. outsider" disadvantage within foreign business networks.

These cited factors seem particularly challenging in the international project management context. Uncertainty is a primary contingency variable moderating the relationship between the structure and process of projects with their outcome success. Liability of foreignness poses greater uncertainty for organizations lacking mature capabilities for understanding foreign markets or internationalization in general. LOF may exist when bidding for international project contracts or resourcing, planning, and executing project activities. In addition, the nature of temporary, single-purpose projects using temporary project teams infers learning environments that are more difficult to articulate and code than ongoing operations. The complex challenges of

developing international project capabilities may benefit from applying international business knowledge to the project context.

Zaheer (1995) noted that reducing the liabilities of foreignness is particularly difficult when learning from existing competitors that may have an advantage in foreign markets or situations. Petersen and Pedersen (2002) demonstrated considerable variance in the learning approaches taken by foreign firms to reduce their disadvantage in native markets. However, they indicated a general frequency in their respondents who attempted to add pre-entry learning as an ingredient of capability building. Johnson and Vahlne (2003) also note the value of investments in indigenous knowledge creation and assets to reduce psychic distance and related risk-related costs. Indeed, uncertainty and ambiguity reduction increase the likelihood of project success in new or unfamiliar circumstances. For these reasons, international project capabilities should heavily emphasize international learning for its project managers focused on market-specific information and the general know-how of IPM that applies to internationalization in general.

These theoretical perspectives have been germane to international business knowledge, which has developed significantly in the past several decades, as evidenced by abundant academic literature and successful business practice. A much less developed domain of international project management inquiry has emerged, yet many principles from the IB field should benefit a body of knowledge for the latter. For this reason, the following research question guides the exploratory research described below: "To what degree do the learning objectives of international business hold significance for developing a similar body of knowledge for international project management?" Finally, a proposed set of learning modules will be derived from the answer to this question that may be used to develop a graduate certificate in international project management.

METHODOLOGY

The first step toward investigating the relationship between international business knowledge and international project management knowledge involved identifying learning objectives from several well-known and popular international business textbooks. These learning objectives are a proxy for a comprehensive set of international business competencies. The IB competencies were incorporated into a survey of project managers with international project management experience that asked them about the relevance of international business concepts to international projects. Finally, survey results were used to develop a recommended course progression for an international project management graduate certificate.

International Business Competencies

International business has an extensive knowledge base, including topics that focus on cultural awareness, international standards knowledge, and the ability to operate across varying political economies (Li et al., 2020). The first step in this study involved conducting a qualitative analysis of learning objectives from two popular international business textbooks widely used in the international business and management education discipline, collecting 162 learning objectives (Doh & Luthans, 2018; Hill & Hult, 2016). These textbooks were chosen for two

reasons: first, the authors were familiar with the textbooks, and both textbooks are best-sellers (as noted by the Amazon.com ranking as of 9/16/2022, in the top 35 international business books). Next, the research team removed duplicate and highly similar learning objectives, first by manually reviewing the objectives and second by asking practitioners familiar with IB and PM to review the list of learning objectives for clarity and potential duplication. After two rounds of review, the research team condensed the list of learning objectives to 44 items. Further qualitative analysis based on the similarity of context and concepts of the learning objectives allowed the research team to organize the 44 learning objectives into six broad themes: cultural intelligence and awareness, globalization, international strategic thinking, international trade and foreign exchange awareness, management and leadership skills and knowledge, and technical and operational proficiency.

The research team validated these themes as useful for international project managers by comparing them to the knowledge required for the Certified International Project Manager certification offered by the International Association of Project Managers (IAPM, 2020). The CIPM certification recognizes the unique characteristics of international projects and globalized project environments. The CIPM certification exam currently assesses knowledge related to international business competencies, cultural dimensions, and technical project management skills (IAPM, 2020), which align with the themes identified by the research team in their analysis of IB competencies.

Survey Development

The six themes and the underlying 44 learning objectives formed the primary content of a survey delivered to international project managers. The survey included questions about general and international project work experience. Work experience questions asked respondents to consider a specific international project they had recently completed or were currently working. The questions included the type of project, the respondent's role in the project, the project manager's primary work country while working on the project, the number of countries the project team represents, the project budget and duration, and project complexity. Project complexity was measured across four dimensions: urgency, novelty, uncertainty, and strategic value (Shenhar, 2001). The work experience and project questions data were used further to validate the international competence of the survey respondents.

The survey presented the 44 learning objectives grouped into the six themes identified earlier to reduce cognitive load. The survey prompted respondents to evaluate the items' relevance to international project management using a sliding scale (0-100), reflecting how each respondent felt the learning objective was relevant to international projects. The survey also prompted respondents to add any knowledge or topics not included in the list but that the respondents felt were necessary for successful international projects. To contextualize and characterize the panel, the respondents answered demographic questions (social desirability bias; Hays et al., 1989), age, nationality, gender, spoken languages, and education). The respondents answered several open-ended questions about various aspects of IB and its relevance to managing international projects. These questions provided a rich context for discussing findings and the proposed curriculum for international project management.

Sampling Approach

International project managers were chosen as research participants because of their experience working on international projects. The team felt it was important to study international project managers' perceptions of the importance of various international business competencies in managing international projects. The data collected were analyzed using a qualitative approach to design a relevant and appropriate graduate concentration in international project management.

Because this research focuses on understanding the relationship between IB competencies and the necessary knowledge for successfully managing international projects, the research team worked with international project experts who demonstrated proficiency in managing international projects. The research team contracted with an online survey company to select a panel of working project managers with at least three years of experience working on international projects, specifically holding project or program management roles. Respondents who met these criteria were deemed subject matter experts and suitable for participation in the survey.

The survey company compensated the qualified respondents for their time. Using compensated online survey panels raises concerns regarding the data's validity and reliability (Porter et al., 2018; Stanley et al., 2020; Walter et al., 2018). Porter et al. (2018) recommend that researchers consider how the participants are recruited and selected, an appropriate study design and sample size, testing for quality of responses, and informed consent, among others. One concern is that respondents provide data only to receive incentives, but that apprehension may be reduced by a recent analysis proving that incentives are not significantly correlated with response bias, or the quality of data obtained (Stanley et al., 2020). Further, Stanley et al. (2020) demonstrated both the online survey panels' internal consistency and external validity. However, they caution investigators to ensure that online survey samples are appropriate to the research question being investigated (Stanley et al., 2020; Walter et al., 2018).

The current study mitigated concerns about using a compensated online panel by considering the recommendations by Porter et al. (2018) in the research design. First, the research team recruited and selected qualified experts (experienced international project managers) using two qualifying questions included in the survey that confirmed the participants had at least three years of managing international projects as a project or program manager. Second, to ensure an adequate sample size for this study, the research team negotiated for a minimum of 160 valid responses (i.e., responses from participants who met the two qualifying questions and completed the survey with valid responses), which is more than sufficient sample size to reveal desired effect sizes. Finally, to ensure response quality, only respondents who met the qualification criteria and passed non-random tests conducted by the survey company were included in the analysis. As noted by Porter et al. (2018), other essential factors to consider that were addressed by the current study include posting informed consent, requiring respondent agreement, and collecting demographic data, including current country of residence.

Approach to Curriculum Development

The survey results contributed to a proposed graduate curriculum in international project management. Based on the importance assigned to the IB competencies, a series of learning modules were developed that covered the relevant IB topics. The modules grouped similar competencies so that each module could be taught as a stand-alone module or as a sequence of modules that could be used to develop a course or certificate in international project management.

RESULTS

The survey results addressed the first research question, "To what degree do the learning objectives of international business hold significance for developing a similar body of knowledge for international project management?" 247 respondents participated, with 168 responses meeting the required filters of three or more years of international PM experience and service in a project or program manager role. Respondents were predominantly males (88%) aged 35-44 (73%) who indicated the United States as their primary work country (83%). Table 1 summarizes the sample demographics.

Table 1
SAMPLE DEMOGRAPHICS

		International Project Experience (Years)						Age (Years)						Gender		
Primary Work Country	**#**	**3-6**	**7-10**	**11-15**	**16-20**	**20+**		**18 - 24**	**25 - 44**	**45 – 64**	**65 +**	**NS.**		**Male**	**Female**	**Not Provided**
Afghanistan	1	1	-	-	-	-		-	1	-	-	-		1	-	-
Australia	6	3	2	1	-	-		-	5	1	-	-		5	1	-
Belgium	1	-	-	1	-	-		-	1	-	-	-		1	-	-
Belize	1	-	-	-	-	1		-	-	1	-	-		-	1	-
Brazil	1	-	-	1	-	-		-	1	-	-	-		1	-	-
Canada	9	3	4	1	-	1		-	4	5	-	-		9	-	-
China	1	1	-	-	-	-		-	1	-	-	-		1	-	-
Dominican Republic	1	-	-	1	-	-		-	1	-	-	-		1	-	-
France	1	1	-	-	-	-		-	1	-	-	-		1	-	-
Guatemala	1	1	-	-	-	-		-	1	-	-	-		1	-	-
India	1	-	1	-	-	-		-	1	-	-	-		1	-	-
Italy	1	1	-	-	-	-		-	1	-	-	-		1	-	-
Japan	1	-	1	-	-	-		-	-	1	-	-		1	-	-
Liberia	1	-	-	1	-	-		-	1	-	-	-		-	1	-
Mexico	2	1	-	1	-	-		-	1	1	-	-		2	-	-
Switzerland	1	1	-	-	-	-		-	1	-	-	-		1	-	-
USA	138	37	62	28	7	4		0	115	17	2	4		119	15	4
Total by Category	168	50	70	35	7	6		0	121	26	2	4		146	18	4
% Category		30%	42%	21%	4%	4%		0%	81%	13%	1%	2%		87%	11%	2%

Analysis of International Business Competencies

All respondents rated the importance of the 44 learning objectives, and a mean relevance score was computed for each objective. The items were ranked in order of importance using the mean score, with the highest mean score given a rank of "1." When item mean scores were equal, the item with the smallest standard error of the mean was given a higher rank. The rankings of the learning objectives are shown in Table 2.

Table 2
RANK OF TOP 25 LEARNING OBJECTIVES BY EXPERTS

#	Learning Objective	Mean	SE [95% CI]
1	Capacity to coordinate and control international project activities	87.80	1.01 [85.80-89.80]
2	Virtual team leadership and technology integration	87.58	1.05 [85.50-89.65]
3	The value and challenges of multiculturalism and diversity on project teams	87.22	1.00 [85.25-89.19]
4	Understanding country differences and location-specific advantages for structuring project activities	87.16	1.06 [85.07-89.25]
5	Ability to plan and execute international logistics	86.55	1.12 [84.35-88.76]
6	Evaluating benefits and costs of international project alliances	86.46	1.24 [84.01-88.91]
7	Business and economic implications of cultural differences	85.93	1.18 [83.59-88.27]
8	Policies or regulations used by governments to control international trade	85.91	1.08 [83.78-88.05]
9	The unique ethical dilemmas faced by international project managers	85.91	1.17 [83.61-88.21]
10	The impact of trade agreements such as NAFTA, European Union, ASEAN	85.91	1.25 [83.44-88.37]
11	Ability to manage international aspects of organizational structure and processes	85.80	1.23 [83.39-88.22]
12	Understanding the impact of exchange rates, trade barriers, and transportation costs on budget management	85.79	1.11 [83.60-87.99]
13	How knowledge management may differ between countries	85.71	1.23 [83.28-88.14]
14	Knowledge of the firm's corporate strategies with respect to international projects	85.70	1.34 [83.06-88.34]
15	Understanding cultural intelligence and the problems of ethnocentric thinking	85.57	1.18 [83.24-87.91]
16	International aspects of personnel sourcing, selection, compensation, training, and development	85.43	1.21 [83.04-87.81]
17	Cross-cultural communication skills	85.38	1.20 [83.02-87.75]
18	Factors that determine national and organizational culture	85.36	1.13 [83.14-87.58]
19	Mitigation of foreign exchange risk on international projects	85.31	1.09 [83.17-87.46]
20	How performance appraisals differ across cultures	85.27	1.18 [82.94-87.61]
21	The overall dynamics of business globalization	85.27	1.33 [82.65-87.90]
22	Competency in cross-cultural negotiation	85.24	1.12 [83.04-87.45]
23	Impact of foreign exchange volatility on project risk management	85.20	1.13 [82.97-87.42]
24	Globalization's opportunities and challenges for business managers	85.20	1.15 [82.92-87.47]
25	Differences of leadership effectiveness across cultures	85.11	1.24 [82.66-87.56]

Note: The complete list of learning objectives is available upon request.

Technical & Operational Proficiency, International Strategic Thinking, and Cultural Intelligence & Awareness were the three most important themes influencing international project success. Table 3 shows the six themes' ranking and lists each theme's three highest-rated

learning objectives. The relative importance of each of the six themes was computed from the mean ratings for the underlying learning objectives.

Table 3
THEME RANKING AND TOP 3 LEARNING OBJECTIVES

Theme	Overall Mean Score	Top Three Learning Objectives
Technical & Operational Proficiency	86.49	(1) Capacity to coordinate and control international project activities (5) Ability to plan and execute international logistics (11) Ability to manage international aspects of organizational structure and processes
International Strategic Thinking	86.00	(4) Understanding country differences and location-specific advantages for structuring project activities (6) Evaluating benefits and costs of international project alliances (14) Knowledge of the firm's corporate strategies with respect to international projects
Cultural Intelligence & Awareness	85.29	(3) The value and challenges of multiculturalism and diversity on project teams (7) Business and economic implications of cultural differences (15) Understanding cultural intelligence and the problems of ethnocentric thinking
Management & Leadership Skills & Knowledge	85.10	(2) Virtual team leadership and technology integration (9) The unique ethical dilemmas faced by international project managers (16) International aspects of personnel sourcing, selection, compensation, training, and development
International Trade & Foreign Exchange Awareness	84.91	(8) Policies or regulations used by governments to control international trade (10) The impact of trade agreements such as NAFTA, European Union, ASEAN (12) Understanding the impact of exchange rates, trade barriers, and transportation costs on budget management
Globalization	84.27	(13) How knowledge management may differ between countries (21) The overall dynamics of business globalization (24) Globalization's opportunities and challenges for business managers

The mean importance given to all the learning objectives ranged from 82.37 to 87.80, demonstrating the perceived importance of all aspects of international business to managing international projects successfully. The mean importance given to the six themes also demonstrates that experienced international project managers consider the IB competencies essential for international project success.

Proposed Curriculum

Based on the survey results, the following section describes a set of learning modules that should reduce project-level liabilities of foreignness to improve the chances of international project success (Table 4). The content presented here targets professional postgraduate students with varying levels of project management experience. Its design and scope of coverage are sufficient for a graduate certificate or MBA concentration. The following sections describe the

modules by summarizing the key topics covered in each module, how the topics reduce the potential liability of foreignness, and how these align with project management best practices. Initially, six modules were proposed based on the IB competency themes used in the survey. However, after a review of the proposed content, it was decided to split a few of the modules so that all modules were approximately similar in the amount of content covered. Doing so will make it easier to organize the modules into courses or certificates as desired.

Table 4
LEARNING MODULE DESCRIPTIONS

Name	Description
Module 1. National Culture and Ethics	Theme: 3. Cultural Intelligence and Awareness National culture and the implications of cultural differences to project success; dimensions of national culture and values, team diversity and multiculturalism, cultural intelligence, ethical decision-making
Module 2. International Strategy and Operations	Theme: 2. International Strategic Thinking; 1. Technical and Operational Proficiency Organizational structure and processes that support an organization's strategic and operational goals, balancing organizational structure with global standards and location-specific project constraints
Module 3. Leading International Teams	Theme:4. Management & Leadership Skills and Knowledge Approaches to leading and managing international teams, including team development, communication strategies across cultures, and virtual team leadership and technology integration
Module 4. International Project Planning	Theme: 1. Technical and Operational Proficiency; 6. Globalization Examination of how country differences in political, economic, cultural, ethical, and human resource practices may influence and constrain project planning
Module 5. International Human Resource Management	Theme: 4. Management & Leadership Skills & Knowledge Basic concepts of international human resource management (recruitment, selection, compensation, performance evaluation, training, and development); HR practices across different cultural contexts
Module 6. International Trade Regulation and Agreements	Theme: 5. International Trade & Foreign Exchange Awareness; 6. Globalization National differences in commercial statutes, economic policies, and regulatory agreements; the role of country-specific political, legal, and economic systems that may constrain business operations; foreign exchange, trade agreements, and wealth distribution; how these factors influence projects
Module 7. International Project Coordination	Theme: 1. Technical and Operational Proficiency; 2. International Strategic Thinking; 6. Globalization Project coordination functions to maximize efficiencies intra- and inter-organizationally complicated by cross-border activities; project controls for managing the global stakeholder network, nation-specific baselines, contingencies, and country-specific contract and risk plan administration
Module 8. International Project Alliances	Theme: 2. International Strategi Thinking; 6. Globalization Benefits and drawbacks of international alliances to complete project work; strategies to enable international project managers to identify potential partners and negotiate agreements
Module 9. International Project Logistics	Theme: 1. Technical and Operational Proficiency; 2. International Strategic Thinking; 5. International Trade & Foreign Exchange Awareness; 6. Globalization Project logistics, quality control, and distribution channels are affected by international constraints.

MODULE 1 NATIONAL CULTURE AND ETHICS

Cultural intelligence and awareness are critical for international project managers to reduce their potential liability of foreignness and improve project performance. Research and anecdotal evidence support the variety and impact of cultural values, norms, and behaviors worldwide (Chen et al., 2009; Javidan et al., 2006). Project managers working with teams representing multiple nations and cultures must recognize their team members' different values and norms, embrace the benefits of diversity, and minimize the challenges that arise. The international project managers surveyed in this study felt that cultural intelligence and awareness were critical success factors for international projects, rating highly the objectives relating to national culture, values, and challenges of multiculturalism, and unique ethical dilemmas the international project managers face. The information presented in this module will provide the international project manager with a toolkit to understand national cultural differences and maximize the benefits of working with a multicultural project team. This module explores theories of national culture and the implications of cultural differences to project success. Topics will include dimensions of national culture and values, opportunities and challenges of team diversity and multiculturalism, cultural intelligence, and ethical decision-making for international project managers.

MODULE 2 INTERNATIONAL STRATEGY AND OPERATIONS

Several Strategic and Business Management aspects surfaced as critical knowledge for international project managers. The competencies prioritized by the experts suggest international structure and process as necessary knowledge for successful international projects. Whether for continuous operations or discontinuous project work, structure, and processes are vital in implementing strategic actions. Strategy determines the overarching goals guiding organizations (Ansoff, 1965; Chandler, 1990; Guerras-Martín et al., 2014; Porter, 1997), and projects should align closely with a firm's strategic priorities (Morris & Jamieson, 2005). Indeed, projects should not only align with organizational strategy but may encompass unique project-level strategies and adjust project structure and processes to the transitioning environments in which they operate (Morris & Jamieson, 2005). Structure conceptually encompasses horizontal and vertical components, with the former depicting the configuration of work units and the latter reflecting optimal decision-making location in the organizational hierarchy. Projects are the building blocks of strategy implementation, and integrating mechanisms are the information processing that binds them intra- and inter-organizationally (Galbraith, 1974; Tushman & Nadler, 1978). A central theme of international strategies is how organizations must respond to global standardization and cost reduction pressures vs. pressures for local responsiveness (Prahalad & Doz, 1987). Understanding these competing demands would enhance a project manager's ability to translate these organizational priorities to determine project-level activities. Due to the increased uncertainty of internationalization, integrating processes become even more important

to project success and may be enhanced through best practice dissemination, incentive and control processes, and conscientious processes to orchestrate project or organizational culture.

MODULE 3 LEADING INTERNATIONAL TEAMS

Leading international teams requires understanding team development and communication best practices to ensure the project teams are effective and high-performing in face-to-face and virtual environments. This module explores approaches to leading and managing international teams, including team development, communication, and virtual team leadership to support international project success. The expert international project managers ranked virtual team leadership and technology integration as the second most important international business competency.

Because globalization has been strengthened through the technological advancements of the 20th and 21st centuries, international project managers must embrace technology to manage international teams. Since the 1990s, technology has moved from a mechanism to support group functioning to an integral part of team processes and performance (Larson & DeChurch, 2020). Technology both enables and limits communication in project teams (Azriel & Marcirio Silveira, 2018), and a digital divide still exists today (Pikhart, 2020). International project managers must utilize technology's benefits and minimize team functioning and performance limitations.

MODULE 4 INTERNATIONAL PROJECT PLANNING

Research has demonstrated the positive influence of planning competencies on project success (Dvir et al., 2003) and the value of coordinated approaches to project planning (Zwikael, 2009). To reduce LOF, international project planners should consider between-country differences regarding the political economy, culture, ethics, and location-specific advantages or disadvantages relevant to project success. Also, resource transactions among a project's global web of activities may differ in linkages and over time. These differences pose elevated uncertainty, opportunities, and risks for project planners. International planning effectiveness relies on how these international factors are assessed and accounted for during the project initiation and planning stages. Each component of the project management plan should include international contingencies. For example, cost planning should consider exchange rate volatility and compare resource pricing differentials for different sourcing locations. Scope and schedule might benefit from distributed activities located to leverage time zones for round-the-clock workflow and simultaneously capture country-specific resource advantages. Risk and quality plans must identify unique national and cross-national impacts stemming from controllable and uncontrollable factors such as weather patterns, volatility of political economies, real or intellectual property protection, corruption, and contract reliability, or a range of human resource factors native to the host economies.

Procurement planning should consider resource components' price/quality/availability, for which the cost/benefits formula may vary over time and source location. Stakeholder and communication planning complexity intensifies as more international participants escalate

culture-specific requirements and motivations to bear on project success. The deeper a project manager's comprehension of international environments, the more knowledge, experience, and project success factors can be applied to the project plans. The significance of international planning competency applies to more predictable waterfall contexts and the agile approaches characteristic of more ambiguous situations.

MODULE 5 INTERNATIONAL HUMAN RESOURCE MANAGEMENT

Part of team performance includes identifying needed skill sets, recruiting qualified candidates, and providing training and development opportunities to encourage team cohesion and collaboration, which is valid for all project teams. The unique context of international project teams makes it even more critical to understand human resource management practice variations among nations. International human resource management focuses on recruitment and selection, compensation and performance evaluation, and training and development of employees in organizations, considering the differences among nations in how these practices are enacted. It is recognized that differences exist in human resource practices for different countries, and despite increasing globalization, these differences are likely to remain (Al Ariss & Sidani, 2016). The surveyed international project management experts ranked knowledge of international aspects of resource management in the top 20 competencies for international project success. Thus, the purpose of this module is to present the basic concepts of international human resource management and how human resource practices might change across different cultural contexts.

MODULE 6 INTERNATIONAL TRADE REGULATION AND AGREEMENTS

The second strategic and business knowledge module provides an understanding of international trade regulations and agreements. Country differences affect business activities in fundamental ways most relevant in culture, ethics, and political economy, reflecting the interactive effects of a country's political, economic, and legal systems. The political economy's influence on business actions constitutes a broad range of concerns, including political risk, regulatory and economic environments, and the prevailing norms and legal constraints that differ among countries. Country differences in culture and ethics are addressed in a separate module description. Political risk typically arises from government policy or administration, potentially influencing the ease and cost of conducting business, the nature of a country's trade barriers, or the level of corruption in a nation (Busse & Hefeker, 2007). Economic systems influence a country's inflation and interest rate environments, exchange rate fluctuation, financial growth, and wealth distribution (Erb et al., 1996). Legal systems are particularly impactful for projects such as use or business licenses, taxation, regulation, contract law, property protection, and consumer protection.

MODULE 7 INTERNATIONAL PROJECT COORDINATION AND CONTROL

Coordination and control are central themes within international business research (Edström & Galbraith, 1977; Martinez & Jarillo, 1989). Principles of coordination and control extend beyond the organization level to encompass the scope of international project-level operations. Coordination as a management function integrates organizational or project activities to ensure efficient resource utilization, both intra- and inter-organizationally. Coordination challenges are complicated when activities transcend national boundaries and consequently pressure management capabilities. Projects' dynamic and temporary nature requires even tighter coordination in the face of cross-border complexities such as time zone and language differentials, foreign exchange volatility, or international logistics. However, managers must comprehend and act on location-specific factor endowments such as geographical locality, labor rates, intellectual endowments, favorable government support, and industrial or educational infrastructure (Porter, 1997). (Ghemawat, 2007) describes relative distance based on cultural, administrative, geographic, and political differences as critical considerations in coordinating an organization's global web of activities. Appropriate cross-border controls enhance project predictability and harness international asset utilization benefits in concert with coordination mechanisms. Literature has examined antecedents and consequences of control strategies, characteristics of formal and informal controls, and portfolio control approaches (Ning, 2017). International project controls should be introduced in well-orchestrated plans that appropriately engage such considerations as the global stakeholder network, internationally vetted baselines, tolerances, contingency budgets, international contract enforceability, or country-specific risk triggers. International project managers should continuously hone their coordination and control skills to maintain the currency of their competency.

MODULE 8 INTERNATIONAL PROJECT ALLIANCES

An additional strategic and business knowledge suggested by our work is understanding the dynamics of international project alliances. Alliances entail sharing risks and assets and require proactive partnering as a requisite skill. International alliances offer benefits, including facilitating access to foreign assets, sharing costs for developing new or modified products and processes, and potentially merging complementary skills or resources. Strategic alliances have emerged as a compelling international business form in the last several decades because they help ease the uncertainty of foreign operations and mitigate the investment risks of "going it alone." Foreign partners help leverage location-specific knowledge and social capital assets that would be more difficult and take much longer to acquire as an individual effort.

An internationally competent project manager should understand the inherent and changing benefit/risk profile, know how to select appropriate partners, and contractually commit to mutually beneficial project parameters, positioning for equitable gain for various partners. To manage the partnership, project managers must know how to build and maintain productive relationships among the internationally diverse project stakeholders and navigate international

operations' increased volatility. Nevertheless, potential risks include knowledge appropriation, self-seeking behaviors, commitment inequality, or diverging goals and partners' priorities.

MODULE 9 INTERNATIONAL PROJECT LOGISTICS

A related competency to coordination and control is the project logistics function. Project logistics is a type of coordination and quality control extrapolated to the project supply and, in some cases, distribution channels. Logistics are driven by optimizing planning and execution specifications to maintain a constant flow of production resources for the project. International projects typically entail material, personnel, and knowledge contributions from distributed national sources. Maintaining work constrained by schedule, cost, and quality across national boundaries increases logistics uncertainty and complexity while offering efficiencies and cost savings opportunities. Competent project managers may leverage skills from their legal contracting, purchasing, or information systems departments to assist their logistical responsibilities but must maintain adequate international logistics execution competency. Like logistics in a multinational firm, the function can explain significant project performance and product quality variance.

TEACHING APPROACH

As the audience of these modules includes post-baccalaureate students with some work experience in project management, it is vital to create a learning environment that allows them to integrate their personal experiences with the material taught and take responsibility for their learning. Thus, it is recommended that a problem-centered approach be followed to enable mastery and internalization of the knowledge shared. Problem-centered or problem-based learning is not a new concept; it has been successfully used in many contexts. Problem-based learning (PBL) is a teaching method that focuses on the learner and requires students to apply knowledge to solve a real-world problem (Carriger, 2016; Garnjost & Brown, 2018; Savery, 2006; Winarno et al., 2017). PBL appears to be more effective with experienced students (e.g., those found in graduate programs) and when students are familiar with problem-based learning expectations (Garnjost & Brown, 2018). Direct problem-based learning (DPBL, Winarno et al., 2017) uses a combination of direct instruction and problem-based learning to mitigate the lack of student familiarity with the process. PBL is akin to case-based teaching, but cases usually have an expected solution, minimizing the incentive to direct their learning (Carriger, 2016).

One or more problem scenarios might be used to help students integrate knowledge. For example, for an activity within Module 3, Leading International Teams, the instructor would provide lectures or reading material that explored theories of leadership and how they might be reflected in various cultural contexts and offer a scenario, problem, or case for the students to analyze and offer possible solutions for the embedded issues. Winarno et al. (2017) provide an excellent outline for a typical problem-based learning session, shown in Table 5, with specific examples for this module.

Table 5
EXAMPLE LEARNING ACTIVITY

Associated Module: 3. Leading International Teams
Activity: Solving International Team Performance Through Effective Leadership
Instructional Time for Activity: 1-2 hours over two to three class periods, depending on class time.
Expected Student Effort: 4-6 hours (in-class and outside of class)
Learning Objective: Understand how cultural values influence the acceptance of various leadership styles.

Phase 1 Introduction and Identification

- Before the initial session, relevant reading materials and the problem are posted on the course learning management system. Students are expected to review the material before the session.
  - Suggested Reading: Leadership Styles (e.g., Gundersen et al., 2012; Jogulu, 2010; Kuchinke, 1999), Cultural Values Framework (e.g., Minkov et al., 2011; Morden, 1999)
- At the start of the session, the instructor reviews the new concepts in a short lecture and checks for understanding. The instructor presents the problem or scenario, provides guidelines for resolution, and organizes the class into groups of 4-6 students.
  - Suggested Problem: A project manager has trouble managing her project team, whose members represent three countries with different cultures. The team is not meeting project deadlines, and the project sponsor is unhappy. The project manager must consider the role of culture on team performance and determine the best leadership style to get her team to work together and meet project deadlines.

Phase 2 Application and Solution

- *This work may be conducted outside of a formal class meeting.* Each group reviews the problem scenario, identifies assumptions and options, conducts research to support their analysis, and prepares a class presentation based on their recommendation.
  - Suggested Analysis Approach: Each group should develop a recommendation for the most appropriate leadership style for the project manager to apply in this situation, considering the team members' different cultural value frameworks. It may be helpful to offer the team an analytical framework that guides them through problem identification, identification of assumptions and constraints, and identification and comparison of multiple options that may be selected.

Phase 3 Evaluation and Solution

- At a subsequent class meeting, each group presents its recommendation to the class. The class collectively evaluates each recommendation and discusses its strengths and challenges, focusing on its relation to the course material.
- The instructor reinforces the learning objectives and checks for understanding before completing the activity.

DISCUSSION

Our data indicate agreement by international PM practitioners that the existing PM knowledge base would benefit from the additional focus on relevant IB concepts. Open-ended survey questions asked respondents for additional IB topic suggestions beyond the included inventory but yielded few substantive additions. These findings identify a combination of preferred IB topics that constitute a reasonable framework of IPM learning modules to enable project organizations to build and execute their international operating capabilities more

effectively. The importance of these strategic capabilities escalates for project-oriented organizations as globalization intensifies their scope and frequency of cross-border activities.

Organizational learning provides a foundation for developing personal competencies and organizational capabilities focused on specific fields of knowledge or expertise. The strategic value of capabilities depends on the degree to which the capabilities incorporate personal or organizational experience, lessons learned, effective mentorship processes, and other learning activities. A beneficial resource directly geared to learning processes is specialized training and development deployment. However, the worth of such interventions relies on knowledge that reflects contemporary best practices and situational phenomena but is tempered by experiential validation. This study has drawn upon knowledge from the field of international business and has sought validation of those IB learning topics from practitioners within the field of project management. This approach is unique and creative for mapping a body of educational content that, to a substantive degree, has demonstrated support from working practitioners.

From a theoretical perspective, liability of foreignness suggests that lesser experienced, under-resourced, or knowledge-deficient projects would face disadvantages in internationalization due to these deficits. This study crafts a resource-based view of these disadvantages that project organizations should build capabilities to accelerate their international learning and thereby reduce their liabilities of foreignness. Human resource competencies may be the most critical resource for advancing international capabilities, and a vetted training and development curriculum would provide a tool for enabling such competencies. As companies invest in human resource development, they empower project managers with the knowledge to understand international business environments and the organizations to mature internationalization more effectively.

LIMITATIONS AND FUTURE DIRECTIONS

This study is limited in at least a couple of regards mentioned below. It is exploratory and employs a more qualitative approach than empirically inclined methodologies. For this reason, its findings may evolve to incorporate new internationalization perspectives and avenues of learning. The sources of international business topics were derived from two academic textbooks that were both market leaders, one in international business and the other in international management. Although these are broad in scope, incorporating a macro perspective in one and more micro in the other, additional IB information sources are abundant, ranging from the scholarly research literature to popular and practitioner press and even to other academic textbooks that would undoubtedly reveal additional topics and understanding of IB phenomena. Another limitation stems from the narrow demographic of sample respondents that were solely US-based and gender-biased to the extent that less than 1% were female. Another limitation worthy of mention is the need to field test the proposed curriculum to discover gaps in the learning model and to work out unforeseen shortcomings in the topics to be delivered. Field observation and testing of the curriculum in actual situations will offer an extended avenue of validation and refinement by usage. In addition, field testing provides the opportunity to assess the effects of this curriculum on student learning or related performance outcomes.

This paper describes an education and training program that will help develop international business competencies for project managers, supporting their organization's capabilities to mitigate the potential liability of foreignness. This work intends to create visibility of a gap in project management education and offer a learning solution to narrow the gap in the associated body of knowledge. The rankings of our sample validate the proposed curriculum. The curriculum will benefit from field testing and should adjust its learning objectives as a continuous feedback cycle.

This study is exploratory at this stage, and the intended conclusions are neither descriptive of phenomena nor predictive regarding project or organizational outcomes. Instead, the study is in the scholarship of teaching and learning to narrow an existing project management knowledge gap. It aims to propose an interdisciplinary knowledge transfer for utilization within an underrepresented professional discipline. As such, research limitations do exist. The pool of international project management experts was limited in nationality to U.S.-based project and program managers, contributing to a potential loss of generalizability. The study lacks field observation and testing of the curriculum in actual situations. The curriculum needs validation and refinement by usage, as evaluation of the effect of this curriculum on student learning or performance outcomes did not occur.

The next step for this research will be pilot testing of the proposed curriculum. At this point, the curriculum presented herein is merely a suggestion but may be relevant for other graduate business programs to use as a starting point for developing their programs. Further research will be required if an international credentialing organization decides to pursue an international project management credential. Future work toward credential requirements would be generalizable, but the current exploratory study does not assume that characteristic. Pilot testing will offer additional content verification and observation of learning processes. Longitudinal assessment of outcomes may indicate the predictable outcomes of training effectiveness and areas of need for curriculum modification. Training content could be aligned more closely with professional standards to link more clearly to existing project management professional development standards. Collaboration with existing certification learning providers might leverage standard processes to reduce learning curves and liability of foreignness substantially.

This exploratory study is the groundwork for significant theoretical and empirical contributions and application to practice. An active and evolving body of IB theory has developed over 200 years, from Adam Smith's economic justification of free trade (Smith, 1910) to more recent work by Porter explaining the competitive advantage of nations (Porter, 1997). Literature has tested and empirically validated IB theories at the levels of nations, organizations, and individuals, yet the discussion of global activity at the project level is sparse. Project studies, however, is less developed as a theoretical research field but has drawn its applied concepts from operation science and organizational behavior and strategy. We envision a research area ripe for growth and productive outcomes like the evolution of international entrepreneurship that has grown substantially since its seminal work merging the younger field of entrepreneurship with more established IB theory (McDougall & Oviatt, 2003).

CONCLUSION

This study identified the most important international business competencies perceived to positively impact international project managers' performance. The highest priority competencies were used to formulate an international project management training program. Finally, an example approach was suggested to deliver this training to meet international project managers' needs. Project management training providers (in or out of higher education) may find this information helpful in building their international project management curriculum.

REFERENCES

Abushammala, M. (2019). The effect of using flipped teaching in project management class for undergraduate students. *Journal of Technology and Science Education*, *9*(1). https://doi.org/10.3926/jotse.539

Al Ariss, A., & Sidani, Y. (2016). Comparative international human resource management: Future research directions. *Human Resource Management Review*, *26*(4), 352-358. https://doi.org/10.1016/j.hrmr.2016.04.007

Aliber, R. Z. (1970). The multinational enterprise in a multiple currency world. In J. Dunning (Ed.), *The Multinational Enterprise*. Allen and Unwin.

Ansoff, H. I. (1965). Corporate strategy: An analytic approach to business policy for growth and expansion. McGraw-Hill Companies.

Azriel, M., & Marcirio Silveira, C. (2018). Analysis of information technology tools for communication in project management under six perspectives [article]. *Iberoamerican Journal of Project Management*(1), 01.

Berggren, C., & Söderlund, J. (2008). Rethinking project management education: Social twists and knowledge co-production. *International Journal of Project Management*, *26*(3), 286-296. https://doi.org/https://doi.org/10.1016/j.ijproman.2008.01.004

Brady, T., & Davies, A. (2004). Building project capabilities: from exploratory to exploitative learning. *Organization Studies*, *25*(9), 1601-1621.

Busse, M., & Hefeker, C. (2007). Political risk, institutions, and foreign direct investment. *European Journal of Political Economy*, *23*(2), 397-415. https://doi.org/https://doi.org/10.1016/j.ejpoleco.2006.02.003

Carriger, M. S. (2016). What is the best way to develop new managers? Problem-based learning vs. lecture-based instruction. *The International Journal of Management Education*, *14*(2), 92-101. https://doi.org/10.1016/j.ijme.2016.02.003

Chandler, A. D. (1990). Strategy and structure: Chapters in the history of the industrial enterprise (Vol. 120). MIT Press.

Chen, Y. R., Leung, K., & Chen, C. C. (2009). Bringing National Culture to the Table: Making a Difference with Cross-cultural Differences and Perspectives. In *The Academy of Management Annals* (Vol. 3, pp. 217-249). https://doi.org/10.1080/19416520903047244

Cleland, D. I., & Gareis, R. (2006). Global project management handbook planning, organizing, and controlling international projects. McGraw-Hill.

Doh, J. P., & Luthans, F. (2018). International management: culture, strategy, and behavior. New York, NY.

Dvir, D., Raz, T., & Shenhar, A. J. (2003). An empirical analysis of the relationship between project planning and project success. *International Journal of Project Management*, *21*(2), 89-95. https://doi.org/https://doi.org/10.1016/S0263-7863(02)00012-1

Edström, A., & Galbraith, J. R. (1977). Transfer of Managers as a Coordination and Control Strategy in Multinational Organizations. *Administrative Science Quarterly*, *22*(2), 248-263. https://doi.org/10.2307/2391959

Erb, C. B., Harvey, C. R., & Viskanta, T. E. (1996). Political risk, economic risk, and financial risk. *Financial Analysts Journal*, *52*(6), 29-46.

Ewin, N., Luck, J., Chugh, R., & Jarvis, J. (2017). Rethinking project management education: A humanistic approach based on design thinking. *Procedia Computer Science*, *121*, 503-510. https://doi.org/10.1016/j.procs.2017.11.067

Galbraith, J. R. (1974). Organization Design: An Information Processing View. *INFORMS Journal on Applied Analytics*, *4*(3), 28-36. https://doi.org/10.1287/inte.4.3.28

Garnjost, P., & Brown, S. M. (2018). Undergraduate business students' perceptions of learning outcomes in problem based and faculty centered courses. *The International Journal of Management Education*, *16*(1), 121-130. https://doi.org/10.1016/j.ijme.2017.12.004

Ghemawat, P. (2007). Redefining global strategy: Crossing borders in a world where differences still matter. Harvard Business Press.

Guerras-Martín, L. Á., Madhok, A., & Montoro-Sánchez, Á. (2014). The evolution of strategic management research: Recent trends and current directions. *BRQ Business Research Quarterly*, *17*(2), 69-76. https://doi.org/10.1016/j.brq.2014.03.001

Gundersen, G., Hellesoy, B. T., & Raeder, S. (2012). Leading International Project Teams: The Effectiveness of Transformational Leadership in Dynamic Work Environments. *Journal of Leadership & Organizational Studies*, *19*(1), 46-57. https://doi.org/10.1177/1548051811429573

Hays, R. D., Hayashi, T., & Stewart, A. L. (1989). A Five-Item Measure of Socially Desirable Response Set. *Educational and Psychological Measurement*, *49*(3), 629-636. https://doi.org/10.1177/001316448904900315

Hill, C. W. L., & Hult, G. T. M. (2016). *International business: competing in the global marketplace* (11th ed.). McGraw-Hill Education.

Hymer, S., Press, M., & Technology, M. I. o. (1976). The International Operations of National Firms: A Study of Direct Foreign Investment. MIT Press.

IAPM. (2020). *IAPM International Project Management Guide 2.0 Basis for Certification* [PDF]. IAPM International Association of Project Managers.

Javidan, M., House, R. J., Dorfman, P. W., Hanges, P. J., & Sully de Luque, M. (2006). Conceptualizing and Measuring Cultures and Their Consequences: A Comparative Review of GLOBE's and Hofstede's Approaches. *Journal of International Business Studies*, *37*(6), 897-914.

Jogulu, U. D. (2010). Culturally-linked leadership styles. *Leadership & Organization Development Journal*, *31*(8), 705-719. https://doi.org/10.1108/01437731011094766

Johanson, J., & Vahlne, J.-E. (1977). The internationalization process of the firm--A model of knowledge development and increasing foreign market commitments. *Journal of International Business Studies (pre-1986); Atlanta*, *8*(000001), 23.

Johanson, J., & Vahlne, J.-E. (2003). Business relationship learning and commitment in the internationalization process. *Journal of International Entrepreneurship*, *1*(1), 83-101.

Khodeir, L. M. (2018). Blended learning methods as an approach to teaching project management to architecture students. *Alexandria Engineering Journal*, *57*(4), 3899-3905. https://doi.org/10.1016/j.aej.2018.10.004

Köster, K. (2010). International project management. SAGE.

Kuchinke, K. P. (1999). Leadership and Culture: Work-Related Values and Leadership Styles Among Company's US and German Telecommunication Employees. *Human Resource Development Quarterly*, *10*(2), 135-154.

Larson, L., & DeChurch, L. (2020). Leading Teams in the Digital Age: Four Perspectives on Technology and What They Mean for Leading Teams. *Leadership Quarterly*, *31*(1). https://doi.org/10.1016/j.leaqua.2019.101377

Law, K. M. Y. (2019). Teaching project management using project-action learning (PAL) games: A case involving engineering management students in Hong Kong. *International Journal of Engineering Business Management*, *11*. https://doi.org/10.1177/1847979019828570

Luo, Y. (2000). Dynamic Capabilities In International Expansion. *Journal of World Business*, *35*(4), 355. https://doi.org/10.1016/S1090-9516(00)00043-2

Markham, S. E., Markham, I. S., & Smith, J. W. (2017). A review, analysis, and extension of peer-leader feedback agreement: Contrasting group aggregate agreement vs. self-other agreement using entity analytics and visualization. *The Leadership Quarterly*, *28*(1), 153-177. https://doi.org/http://dx.doi.org/10.1016/j.leaqua.2016.10.001

Martinez, J. I., & Jarillo, J. C. (1989). The Evolution of Research on Coordination Mechanisms in Multinational Corporations. *Journal of International Business Studies*, *20*(3), 489-514. https://doi.org/10.1057/palgrave.jibs.8490370

Matsuo, H. (2000). Liabilities of foreignness and the use of expatriates in Japanese multinational corporations in the United States. *Sociological Inquiry*, *70*(1), 88-106.

McDougall, P. P., & Oviatt, B. M. (2003). Some fundamental issues in international entrepreneurship. *Entrepreneurship Theory & Practice*, *18*(27), 1-27.

Minkov, M., Chudzikowski, K., & Hofstede, G. (2011). The evolution of Hofstede's doctrine. *Cross Cultural Management: An International Journal*, *18*(1), 10-20. https://doi.org/10.1108/13527601111104269

Morden, T. (1999). Models of national culture – a management review. *Cross Cultural Management: An International Journal*, *6*(1), 19-44. https://doi.org/10.1108/13527609910796915

Morris, P. W. G., & Jamieson, A. (2005). Moving from Corporate Strategy to Project Strategy. *Project Management Journal*, *36*(4), 5-18. https://doi.org/10.1177/875697280503600402

Ning, Y. (2017). Selecting client's project control strategies in person-to-organization transactions. *International Journal of Project Management*, *35*(2), 212-220.

Petersen, B., & Pedersen, T. (2002). Coping with liability of foreignness: Different learning engagements of entrant firms. *Journal of International Management*, 12.

Pikhart, M. (2020). Digital Communication and the Digital Divide: Cultural Aspects of Human-Computer Interactions. International Conference on Mobile Computing and Sustainable Informatics,

Porter, C. O. L. H., Outlaw, R., Gale, J. P., & Cho, T. S. (2018). The Use of Online Panel Data in Management Research: A Review and Recommendations. *Journal of Management*, *45*(1), 319-344. https://doi.org/10.1177/0149206318811569

Porter, M. E. (1997). Competitive strategy. *Measuring business excellence*.

Prahalad, C. K., & Doz, Y. (1987). The Multinational Mission: Balancing Local Demands and Global Vision. Free Press.

Project Management Institute. (2017). *Project Manager Competency Development Framework*. Project Management Institute.

Sapienza, H. J., Autio, E., George, G., & Zahra, S. A. (2006). A Capabilities Perspective on the Effects of Early Internationalization on Firm Survival and Growth. *Academy of Management Review*, *31*(4), 914-933. https://doi.org/10.5465/AMR.2006.22527465

Savery, J. R. (2006). Overview of Problem-based Learning: Definitions and Distinctions. *Interdisciplinary Journal of Problem-Based Learning*, *1*(1). https://doi.org/10.7771/1541-5015.1002

Schoemaker, P. J. H., Heaton, S., & Teece, D. (2018). Innovation, Dynamic Capabilities, and Leadership. *California Management Review*, *61*(1), 15-42. https://doi.org/10.1177/0008125618790246

Shenhar, A. (2001). One Size Does Not Fit All Projects: Exploring Classical Contingency Domains. *Management Science - MANAGE SCI*, *47*, 394-414. https://doi.org/10.1287/mnsc.47.3.394.9772

Smith, A. (1910). *The wealth of nations* [Non-fiction]. J.M. Dent.

Stanley, M., Roycroft, J., Amaya, A., Dever, J. A., & Srivastav, A. (2020). The Effectiveness of Incentives on Completion Rates, Data Quality, and Nonresponse Bias in a Probability-based Internet Panel Survey. *Field Methods*, *32*(2), 159-179. https://doi.org/10.1177/1525822x20901802

Tushman, M. L., & Nadler, D. A. (1978). Information Processing as an Integrating Concept in Organizational Design. *The Academy of Management Review*, *3*(3), 613-624. https://doi.org/10.2307/257550

Walter, S. L., Seibert, S. E., Goering, D., & O'Boyle, E. H. (2018). A Tale of Two Sample Sources: Do Results from Online Panel Data and Conventional Data Converge? *Journal of Business and Psychology*. https://doi.org/10.1007/s10869-018-9552-y

Winarno, S., Muthu, K. S., & Ling, L. S. (2017). Direct Problem-Based Learning (DPBL): A Framework for Integrating Direct Instruction and Problem-Based Learning Approach. *International Education Studies*, *11*(1), 119. https://doi.org/10.5539/ies.v11n1p119

Zaheer, S. (1995). Overcoming the Liability of Foreignness. *Academy of Management Journal*, *38*(2), 341-363. https://doi.org/10.2307/256683

Zwikael, O. (2009). The Relative Importance of the PMBOK® Guide's Nine Knowledge Areas during Project Planning. *Project Management Journal*, *40*(4), 94-103. https://doi.org/10.1002/pmj.20116

THE COSMETICS INDUSTRY IN THE 2020S: A CASE STUDY

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CASE DESCRIPTION

Many brick-and-mortar stores are facing the repercussions of the retail apocalypse as consumers opt to shop online rather than visit physical stores. While retailers such as Sears, Forever 21, and Barney's have resorted to filing for bankruptcy, others are thriving. The $25 billion specialty beauty industry has benefited from the changing retail landscape, as consumers have drifted away from department stores in favor of beauty, cosmetics, and fragrance stores to purchase their personal care products. Instructors will have plenty of opportunities to engage students and boost participation. This case is ideal for a junior or senior class on retailing, consumer behavior, marketing strategy, strategic management, or merchandising. It is designed to stimulate discussion about brick-and-mortar vs. online retailing, the future of retail, positioning, and psychographic segmentation.

This case is an excellent vehicle for demonstrating how retail strategies can be utilized by underdog and niche retailers to garner customer loyalty and growth. The case is designed to be taught in a 60-75 minute class, and is expected to require 3 hours of outside preparation by students.

CASE SYNOPSIS

Specialty beauty retailers, such as Ulta and Sephora, seem to be Amazon-resistant companies, immune to the downward spiral facing department stores. Millennials are increasingly electing to purchase products from beauty stores due to the stores' product expertise and incentivized loyalty programs. For instance, Ulta Beauty has continued to profit and grow due to the value and shopping experience it is able to offer its customers. The 1200-store chain has found a profitable niche in the intensely competitive beauty market, which was once dominated by department stores. Ulta offers a broad assortment of beauty products, cosmetics, and fragrances across the price spectrum in a low-pressure and relaxed fun environment. Thus, the specialty beauty retailer, that captures 26% of the market, caters to both casual customers looking for bargains and the sophisticated shoppers paying a premium for upscale brands; they then mix in salon services like hairstyling and brow tinting. Together, the mix makes Ulta Beauty a one-stop beauty shop—and one of the most amazing success stories in retail. Sales, profits, and stock price have tripled over the last six years. On the other hand, department stores are contending with powerful sources, like Amazon and trendy specialty stores and discount players such as Ulta and Sephora, chipping away at their business. In 2019, more than 9,300 stores of all kinds closed their doors, a 60% jump from the previous year. The retail apocalypse is real, but some retailers are flourishing nonetheless.

CASE BODY
THE U.S. COSMETICS INDUSTRY

This industry comprises stores that primarily retail cosmetics, perfumes, toiletries and personal grooming products. Operators in this industry include beauty supply stores, specialty cosmetics stores and fragrance stores. Women are the largest market for this industry, with 35- to 54-year-olds representing the most substantial industry customer base. Meanwhile, millennial women are growing at a considerable rate as a share of revenue. Expansive product selections and skilled staff have driven revenue growth for the cosmetics industry to $26.8 billion in 2021. The growing economy has enabled consumers to leverage greater disposable incomes to buy high-end products, resulting in a decent margin for operators.

Table 1
Major Players (2021)

Company	Revenues	Market Share
Ulta Beauty	$6.4 billion	26.1%
Sephora	$4.4 billion	18.1%
Bath & Body Works	$4.3 billion	17.5%
Sally Beauty	$1.7 billion	6.9%
Others	$7.7 billion	31.4%

Source: IBISWorld 2021

Beauty-specialist stores like Ulta and Sephora make up the second-fastest-growing U.S. retail category in the past five years, after off-price retailers (e.g. Marshall's and T.J. Max). Over the past decade, the industry has introduced a steady stream of new, improved, and reformulated products, resulting in revenue growth and increased demand for upscale products. An increase in Generation Z cosmetics, the growth of male-specific products, and the reformulation of antiaging staples have given specialty beauty stores an extensive assortment to offer customers. Increased consumer awareness and concerns of certain environmental and health issues has enthused demand for naturally derived and ecofriendly beauty products. Industry players have also amplified their focus on sun-care products, as consumers' growing concerns about skin health issues have stimulated demand for products that protect the skin from the sun. Meanwhile, stocking imports meant that consumers' options have increased due to an expanding supply of foreign-made cosmetics, beauty supplies, and fragrances (Ryan, 2019).

Table 2
Industry SWOT Analysis

Strengths	**Weaknesses**
- Low Imports - High Profit vs. Sector Average - Low Customer Class Concentration - Low Capital Requirements	- Low & Steady Level of Assistance - High Competition - High Volatility - High Product/Service Concentration - Low Revenue per Employee
Opportunities	**Threats**
- High Revenue Growth (2016-2021) - E-commerce sales - Struggling Department Stores	- Low Outlier Growth - Low Revenue Growth (2021-2026) - Low Performance Drivers - Per capita disposable income

ULTA BEAUTY INC.

Ulta Beauty Inc. (Ulta) is a chain of beauty stores in the United States, selling various cosmetics and fragrances, along with professionally licensed hair-care brands. Ulta started with five stores in Illinois in 1990, and has grown to almost 1,200 stores across 48 states in 2019. The company differentiates itself as a beauty superstore that provides salon services and mass-market merchandise to consumers, aestheticians, and salons. Product assortment revolves around five categories: cosmetics; skincare, bath and fragrance; haircare products and styling tools. In fiscal 2019[i], Ulta reported $6.7 billion in sales and $658 million in profits.

Table 3
Number of stores and sales of Ulta Beauty (2012 - 2020)

Year	Stores	Revenue (USD Billion)	Profit (USD Million)
2012	449	1.78	120.3
2013	550	2.22	172.5
2014	675	2.67	202.8
2015	774	3.24	257.1
2016	874	3.92	320
2017	974	4.85	409.8
2018	1,074	5.88	555.2
2019	1,174	6.72	658.6
2020	1,254	7.38	705.9

Source: Ulta Annual Report 2021

According to the company's financial statements, Ulta's strategy is to expand its brick-and-mortar presence, increase upscale brand offerings, nurture its brand awareness and salon

services, and grow its e-commerce business. In recent years, Ulta has worked to launch partnerships with high-end and premium brands. In 2016 and 2017, for instance, the beauty giant announced partnerships with many fast-growing brands, including Julep, MAC, and Rituals Cosmetics. The company has also recently formed partnerships with celebrity-endorsed products, including Jessica Alba's "Honest Beauty" and Ariana Grande's fragrance "Sweet Like Candy" by Ariana Grande, which Ulta has the exclusive rights to sell in its stores and online (Acosta, 2017).

Thirty years ago, before Ulta was founded, female shoppers would go to different stores to buy prestige beauty products, get their hair styled, and pick up basics like lipstick. Its retail format, combining a one-stop shopping model with salon services, propelled it overtake Sephora in 2015 to become the largest beauty-specialist retailer in the U.S., with a 26 percent market share. Ulta has disrupted the status quo by offering unique product mixes, and featuring mass, prestige and professional brands under one roof. Besides, Ulta doesn't have commissioned salespeople. Shoppers can walk around the store and pick up nail polish or lipstick and put it on in a laid back environment. The company has grown rapidly due to its strong branding, competitive pricing and loyalty program. According to Ulta's financial statements, the company has about 32 million loyalty members, mostly millennials, who account for about 90% of total company revenues.

Mary Dillon, former CEO of McDonald's and U.S. Cellular, became Ulta's chief executive in July 2013. She unveiled a multiyear plan in 2014 and has delivered on her promises. Ulta's store fleet reached 1,200 locations in 2019. Dillon's vision included new brands and exclusive items that drive excitement among shoppers. The company added 30 new brands in 2014 alone to reach more than 500. Meanwhile, Ulta doubled down on its high-end segment, rolling out premium and pricey brands like Lancôme, Estee Lauder, and Clinique; making it a critical piece of its growth strategy. And Dillon got e-commerce up to 10% of sales by 2019, from 5% when she took office (Gharib, 2019). Her plans seem to have impressed Wall Street; and Ulta's market value has tripled since she became CEO. Stock price has risen from $100 in July 2013 to $300 in February 2020.

Because Ulta carries brands at all price points, it has the ability to seize market share from drug store chains like CVS and department stores like Macy's. In the Instagram era, where looking good on camera is a part of life for Generation Z and Millennials, Ulta found a way to capitalize on the selfie craze. Ulta's mobile app has a feature called "Glam Lab" that allows customers to take selfies and apply virtual makeup before they make a purchase. At its 1200 stores, shoppers can also visit a professional skin therapist for "face mapping," and get their eyebrows tweezed, trimmed, and tinted. Most of Ulta's stores are located in suburban strip malls. At 10,000 square feet, they're big enough to house a range of products, from Revlon Inc.'s $8 Almay liquid eyeliner to Estee Lauder Cos.'s $32 lipstick. Each Ulta store carries about 20,000 SKUs. The broad and deep assortment allows Ulta to cater to a wide range of shoppers. The company is also opening urban stores half the size of its typical space.

The Bolingbrook, Illinois-based company favors high-traffic strip center locations to spare its customers browsing a vast indoor mall to find the store, Ulta provides convenience for people with limited time to shop. They can traverse the stores for cosmetics, fragrance, and hair and skin products on 20 minutes or less. Ulta's in-house salons give it a unique advantage. Aside

from the convenience of enabling customers to get their hair done and shop for beauty products in the same trip, Ulta adds on more loyal customers. The result has been staggering growth, especially by the sluggish standards of brick-and-mortar retailing. Ulta's sales have tripled since fiscal 2012 (from $2.2 billion to $6.7 billion); and the future looks bold and beautiful.

SEPHORA

The second biggest player with about 18% of the market is Sephora. Owned by luxury holding company Louis Vuitton Moet Hennessy (LVMH), Sephora, which operates in the United States through Sephora USA Inc., is a beauty retailer that sells cosmetics, men's and women's fragrances and other beauty-related products in brick-and-mortar stores across 31 countries and online. Headquartered in Paris, Sephora first opened its doors in the United States in 1998 with a New York City store. To date, Sephora operates more than 2,700 freestanding stores around the world, with about 35.0% of its sales generated in the United States. The company also runs smaller Sephora stores within JC Penney Company Inc.'s and Kohl's Corporation stores. In 2020, Sephora generated $4.4 billion in revenue.

Sephora has expanded its Beauty Insider program over the five years to 2021, which rewards loyal customers with special products and exclusive information. The new program offers a premium level of rewards for customers who spend more than a certain amount annually, ensuring customer loyalty from top spenders. In 2016, the company launched Play!, a subscription-based service through which customers receive a beauty box in the mail every month. The service has since been cancelled as of April 2020, however. The company has announced that they plan to replace the program with an improved subscription-based service.

Over the five years to 2021, Sephora's US industry-specific revenue is anticipated to decrease at an annualized rate of 2.2% to $4.5 billion as e-commerce and international sales continue to make up a larger share of revenue. Overall, the company has achieved growth by offering a distinct in-store experience to its shoppers. At Sephora, customer service and a consistent image are paramount. The company's employees are referred to as "cast members" and the sales floor is the "stage," as workers are expected to provide customers with an entertaining experience. Due to the company's strong focus on customer service, high wage costs slightly eat into profitability, although profit still stands above the industry average. In 2021, the company's profit margin, measured as earnings before interest and taxes, is expected to reach $298.5 million. Sephora's e-commerce sales increased strongly amid the coronavirus pandemic, but industry-relevant revenue is anticipated to decrease as a consumer foot traffic at brick-and-mortar locations declined. Industry-relevant revenue is likely to rebound in 2021, however, and is anticipated to grow by 40.2% as consumers return to shopping in-person.

BATH & BODY WORKS

Bath & Body Works LLC was founded in 1990 in New Albany, OH, and operates under the L Brands Inc. (L Brands)'s umbrella. Founded in 1963, L Brands operates brands including Victoria's Secret and Bath & Body Works. Bath & Body Works offers various personal care

products including body washes, lotions and fragrances, which are sold at their branded stores. The brand operates 1,633 stores in the United States, as well as others in Canada and 30 additional countries, adding up to a total of 2,024 stores. In fiscal 2021 (year-end January), Bath & Body Works generated $4.3 billion in total company revenue.

The brand offers high-quality products and emphasizes innovation as part of its business strategy. Product development and a stimulating in-store experience, coupled with the knowledge of a well-trained management team, are central to Bath & Body Works' operations. Bath & Body Works invests significantly in their new concept stores, such as the White Barn design for their home fragrance assortment, which drives sales and attracts customers due to its innovative and compelling design. Between 2017 and 2018, Bath & Body Works focused in the remodeling of its stores in North America and increasing their square footage, while simultaneously expanding its domestic and international store count.

Over the five years to fiscal 2022, Bath & Body Works' industry-specific revenue is projected to increase at an annualized rate of 6.6% to reach $4.1 billion. Furthermore, the Bath & Body Works' industry-relevant profit margin is also anticipated to increase, growing at an annualized rate of 18.7% to reach $1.9 billion in fiscal 2022. Although sales are expected to have suffered amid the coronavirus pandemic in 2020, revenue is expected to recover in in fiscal 2022.

SALLY BEAUTY HOLDINGS

Founded in 1964 and headquartered in Denton, TX, Sally Beauty Holdings Inc. is a specialty retailer and distributor of professional beauty supplies. The company operates under two reportable segments: Sally Beauty Supply and Beauty Systems Group. The company's operations within the Sally Beauty Supply segment apply to the Beauty, Cosmetics and Fragrance Stores industry. This segment sells products for hair, nail and skin care to professional and retail customers. According to the company's most recent annual report, Sally Beauty Supply accounts for 3,644 company-operated retail stores with 2,753 located in the United States. In addition, the company's international stores are spread throughout Canada, Mexico, Chile, the United Kingdom, Ireland, Belgium, France, Germany, the Netherlands and Spain. In fiscal 2020 (latest data available; year-end September), Sally Beauty Holdings employed 30,000 people and reported $1.7 billion in total company revenue.

Sally Beauty Supply's mission is to empower their customers by offering in-store knowledgeable professionals and strategic product assortment. The company flourishes from partnering with specific brands and influencers and providing salon-quality products at attractive prices. The company invests in their compelling shopping environment to help drive customer traffic to their stores and increase their sales. Furthermore, the company always keeps up with the latest fashion and industry trends to cater to changing customer preferences and demand. In 2021, the company's profit margin, measured as earnings before interest and taxes, is expected to comprise 15.9% of overall revenue. Although revenue fell in 2020 as a result of the coronavirus pandemic, the company is expected to recover in 2021 as consumers spending increases.

WINNERS AND LOSERS

The department store was the typical go-to place for cosmetics a decade or so ago. However, the challenge in the cosmetic department in department stores has been twofold. First, traffic continued to decline due to the competition in the mall from Amazon. And second, the cost of doing business for a cosmetic brand continued to rise, as beauty advisor salaries and overheads continue to go up. Because of the department stores' challenges, a new face in cosmetic retail evolved: the specialty open-sell cosmetic store. The most famous of these are Ulta and Sephora. The two beauty retailers were not successful, initially, because the big brands were still committed to the department stores and feared that they would be dropped if they expanded outside the traditional store channel. Over time, however, it became clear that Ulta and Sephora are the go-to retailer for any new prestige brand because its traffic amongst the younger female population far exceeds that of department stores. Ulta has completely discredited the old notion that you were either prestige or mass. One of Ulta's advantages is that 90 percent of its stores are located in outdoor shopping centers, rather than enclosed malls, whose department-store anchors are struggling with slow traffic and competition from Amazon. Ulta's success comes as U.S retailers are reeling from a disastrous decade. Some of the industry's biggest names, including Sears and Barney's have filed for bankruptcy. Others like Macy's and J.C. Penny are experiencing stagnant revenues and declining profits and shutting weak locations (Warfield, 2019). Table 5 shows how Ulta has had a thriving 2019, while major department stores struggled. Ulta's market valuation ($20.7 billion) was almost equivalent to the major 4 department stores combined ($21 billion).

Table 4
Major Department Stores Vs. Ulta Beauty (2020)

	Revenues ($Million)	Revenue % Change	Profits ($Million)	Profit % Change	Assets ($Million)	Valuation ($Million)	Employees
Ulta Beauty	$6,716	14.3%	$658.6	18.6%	$3,191	$20,683	30,000
Macy's	$25,739	3.6%	$1,108	-28.4%	$19,194	$7,388	130,000
Kohl's	$20,229	5.9%	$801	-6.8%	$12,469	$11,220	81,500
J.C. Penny	$12,019	-3.9%	$-255	-	$7,721	$471	95,000
Dillard's	$6,503	1.3%	$170.3	-23.1%	$3,431	$1,897	31,000

Source: Fortune 500 (2020)

There are reasons why Ulta hasn't succumbed to the Amazon Effect. Like off-price stores, beauty retailers frequently get a call-out for being resistant to Amazon's offensive tactics in today's evolving retail world. The unique in-store experience, the test-and-trial nature of beauty products, and vigorous loyalty programs are the major factors behind this success. These retail tactics appeal greatly to millennials, who tend to exhibit little brand loyalty (Eldor, 2017). By visiting a Sephora or Ulta, they can tinker with various options, without having to visit

separate stores or counters. They also enjoy putting the product on with no or minimal human interaction. The "treasure hunt" atmosphere created by these stores allows young beauty shoppers to have fun in the process. Most of them have watched celebrities and bloggers apply various make-up styles or researched reviews of different products online, so they feel confident enough to search and try the cosmetics on their own. Consequently, Sephora is looking at opening an additional 100 stores in 2020, and Ulta is doing the same (Valinsky, 2020). The future looks bright for the specialty beauty stores. We cannot say the same about department stores. The novel Corona pandemic will have implications on the retail sector, particularly for department store chains which have little margin for financial downturns. The specialty beauty industry, nevertheless, is anticipated to recover partially from the adverse effects of the COVID-19 pandemic, with industry revenue expected to expand 22.5% in 2021 after falling 18.1% in 2020.

REFERENCES

Danziger, Pamela (August 31, 2018). Christmas Comes Early For Ulta, Thanks To A New Partnership with Kylie Jenner. Retrieved from https://www.forbes.com/sites/pamdanziger/2018/08/31/christmas-comes-early-for-ulta-thanks-to-a-new-partnership-with-kylie-jenner/#48e5b907957c

Gardner, K.; Edmondson D.; and Mathews L. (2021). Beauty During a Pandemic: The Impact of COVID-19 on the Cosmetic Industry. Atlantic Marketing Journal. Vol. 10 Issue 2, p1-17. 17p.

Loeb, Walter (March 18, 2019). Why Ulta Beauty Is Winning Customers And Keeps Growing Rapidly. Retrieved from https://www.forbes.com/sites/walterloeb/2019/03/18/why-ulta-beauty-wins-customers-and-keeps-growing-rapidly/#1987061e664a

Mattioli, Dana (March 17, 2020). Amazon to Hire 100,000 Warehouse and Delivery Workers amid Coronavirus Shutdowns. Retrieved from https://www.wsj.com/articles/amazon-to-hire-100-000-warehouse-and-delivery-workers-amid-coronavirus-shutdowns-11584387833

Acosta, Gina (July 12, 2017). The enduring beauty of Ulta. Retrieved from https://retailleader.com/enduring-beauty-ulta

Danziger, Pamela (April 10, 2019). Retail Downsizing Will Accelerate, With UBS Predicting 75,000 Stores Will Be Forced To Close By 2026. Retrieved from https://www.forbes.com/sites/pamdanziger/2019/04/10/retail-downsizing-will-accelerate-as-75000-stores-will-be-forced-to-close-by-2026/#4faa8a01339e

Eldor, Karin (December 19, 2017). Retail Trends: 6 Industry Experts Share Their 7 Predictions For 2018. Retrieved from https://www.shopify.com/retail/retail-trends-2018

Faulkner, Cameron (January 30, 2020). Amazon now has more than 150 million Prime members after huge holiday season. Retrieved from https://www.theverge.com/2020/1/30/21115823/amazon-q4-19-earnings-prime-membership-fresh-one-day-shipping

Gharib, Susie (January 15, 2019). Ulta Beauty CEO Says of Her Success: "Anything is Possible" With Hard Work and Persistence. Retrieved from https://fortune.com/2019/01/15/ulta-beauty-ceo-mary-dillon-leadership/

Leadem, Rose (June 25, 2018). 17 Incredible Amazon Prime Facts and Stats. Retrieved from https://www.entrepreneur.com/slideshow/304271

Popomaronis, Tom (September 26, 2017). 5 Shopping Trends Changing Retail As You Know It (Whether You're Ready or Not). Retrieved from https://www.forbes.com/sites/tompopomaronis/2017/09/26/5-shopping-trends-changing-retail-as-you-know-it-whether-youre-ready-or-not/#32d038b03f45

Ryan, Tom (March 26, 2019). Who will win the Sephora vs. Ulta beauty competition? Retrieved from https://retailwire.com/discussion/who-will-win-the-sephora-vs-ulta-beauty-competition/

Steimer, Sarah (February 7, 2018). Online vs. Offline Commerce. Retrieved from https://medium.com/ama-marketing-news/infographic-online-vs-offline-commerce-b446ca99ee71

Ulta Beauty (2021). 2020 Annual Report. Retrieved from https://www.ulta.com/investor/sec-filings/annual-reports/content/0001558370-21-003523/0001558370-21-003523.pdf

Valinsky, Jordan (February 4, 2020). Sephora is opening 100 new stores in its largest expansion ever. Retrieved from https://www.cnn.com/2020/02/04/business/sephora-store-expansion/index.html

Warfield, Nia (December 27, 2019). How department stores lost their clout in the beauty industry to Ulta, e-commerce and influencers. Retrieved from https://www.cnbc.com/2019/12/27/how-department-stores-lost-their-clout-in-the-beauty-industry.html

Whiteman, Doug (January 5, 2020). These Chains Have Announced a Ton of Store Closings in 2019. Retrieved from https://moneywise.com/a/retailers-closing-stores-in-2019

CULLOWHEE CONFECTIONARY COMPANY: A TEACHING CASE ON VALUING A FAMILY-OWNED BUSINESS

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CASE DESCRIPTION

This case is primarily concerned with developing criteria to evaluate a family business, the role of financial leverage and debt in developing a strategy, the role of family dynamics on business strategy, the use of financial and non-financial information to value family-owned businesses and evaluating a family-owned business in financial distress. Secondary issues include factors underlying growth, analyzing the business environment, and financing a buyout. The case has a difficulty level of three and is appropriate for junior level courses such as advanced managerial accounting, financial statement analysis or entrepreneurial strategy. Each timeframe (act) is designed to be taught in approximately half an hour and should require approximately three hours of outside preparation by students.

CASE SYNOPSIS

This teaching case covers two decades out of the history of Cullowhee Confectionary Company. As such, this case examines three distinct time periods of the company. Users may elect to cover the entire case or choose specific time periods that best meets the goals of the course; however, it is recommend that the entire case be presented so the background information can be used in all parts. Few accounting and finance cases deal with family owned (privately held) businesses. This case addresses unique issues frequently encountered in family businesses.

The case first addresses the topic of valuing a privately-owned family business and the difficulties of running a business when the owners have very different goals. Then, as the company faces changes in demand, the case flows into creating a new strategy and the creation of balanced scorecard and identifying performance measures. Finally, the company finds itself in facing financial issues and looks at how to value a family-owned firm in distress.

This case is based on real events and publicly available data. However, because we have taken some artistic liberties with the way the story is told, modified available data and added data where gaps in data availability existed, the names of the protagonists and company have been altered. We have taken great care to ensure that the changes made did not alter the actual dynamics and financial relationships for student analyses.

Key Words: *Business valuation, family-owned business, financial distress, strategy*

INTRODUCTION

Founded in the early 1900s, Cullowhee is among the oldest family owned and managed confectionery manufacturers in the United States. Cullowhee's product mix runs a full selection from peanut brittle to hollow chocolates. The company offers the most extensive array of fine high-quality chocolate and non-chocolate confections available in the marketplace. Historically, the company operated primarily in the fundraising sales channel selling seasonal items to schools, churches, clubs, associations, and other groups.

The confectionary production industry is profitable because companies use branding techniques to help consumers differentiate their brand from the competition. Since candy products are typically homogeneous, branding allows larger companies with well-known brands to pass on increasing commodity costs to consumers in the form of higher prices. Smaller companies that produce generic brands struggle to compete with the larger companies, as they have not established brand loyalty. However, price-sensitive consumers are likely to buy generic brands during tough economic times, which also benefits industry profitability.

In the past five years, consumers became more health-conscious due to increased media attention on the link between sugar consumption and diseases. For instance, according to *The New York Times*, high sugar consumption has been linked to diabetes in children throughout the past decade. This increased media attention has caused a growing number of consumers to lower candy consumption. However, industry revenue did not decline since major players, such as Mars, produced products that appealed to health-conscious consumers.

Finally, producers are increasingly using technology during production to improve operating efficiencies. At the same time the number of enterprises has declined at an annualized rate of about 1.6% to 372 in the five years to 2013 due to larger companies acquiring smaller companies to increase their market share and cut production costs.

ACT ONE: TOO MANY BRANCHES

Grace Alexander, the CEO and the great grandchild of the company's founders, her sister Callie Alexander and cousins Chloe and Anneke Nicholas along with the company's non-family management team emerged from yet another family stockholders' meeting in 2013 feeling the same frustration that plagued so many of the previous meetings. As the family has family tree has grown, so has the number of owners in the company. The once thriving ninety-year-old family business was feeling the weight of too many noninvolved family member heirs. While the managing family members wanted to reinvest the profits into the firm, the noninvolved family members wanted their inherited share of the profits without the burdens of ownership or management of the company. It was rapidly becoming apparent the continued survival of Cullowhee Confectionary would require a change.

Table 1
INCOME STATEMENT FOR CULLOWHEE CONFECTIONARY COMPANY
FOR THE PERIOD 2008– 2012
($ IN THOUSANDS)

	2012	2011	2010	2009	2008
Net Sales	$ 8,730	$ 9,018	$ 8,998	$ 8,781	$ 8,783
Cost of Goods Sold	$ 4,854	$ 5,059	$ 5,220	$ 5,964	$ 5,704
Gross Profit	$ 3,875	$ 3,960	$ 3,777	$ 2,817	$ 3,079
Operating expenses					
Total distribution expenses	$ 414	$ 469	$ 571	$ -	$ -
Total selling expenses	$ 1,947	$ 1,949	$ 1,773	$ 1,565	$ 1,270
Administrative expenses	$ 596	$ 492	$ 491	$ 432	$ 417
Total operating expenses	$ 2,957	$ 2,911	$ 2,836	$ 1,997	$ 1,687
Operating profit	$ 918	$ 1,049	$ 942	$ 820	$ 1,392
Other Expenses					
Total Other expenses	$ 120	$ 102	$ 117	$ 130	$ 182
Net Earnings	$ 798	$ 947	$ 825	$ 691	$ 1,210

The initial thoughts were to trim the branches by buying out the noninvolved heirs. Everyone wondered if this was even possible. Would the majority sell for a cash buyout? How much would it take and even more important, what was a fair price? They agreed on one thing; the art and challenges of saving both the company and the family became the new mission of the managing family members. Their challenge now is to create a buyout offer and refinancing structure.

ACT TWO: FALLING LEAVES

After the buying out the noninvolved family members, the company finds itself in a every changing market. The market changes and conditions have forced Cullowhee Confectionary to consider a broader market approach. With varying degrees of success, Cullowhee's Vice President for Marketing Anneke Nicholas opened new channels within the retail drug, grocery, mass merchandise and convenience store market segments. The company also successfully introduced several new products and found additional revenues through the contract manufacturing and private label market segments. By 2019, fund raising product sales have fallen from a majority of revenue to just 35% with the remainder coming from the new product/service operations mix. With the new strategy and focus in place, Anneke Nicholas wants to develop a Balanced Scorecard and Strategy Map to support her efforts. She would also like to investigate which marketing channels the company should pursue to further reduce the dependency on fund raising sales.

Table 2
INCOME STATEMENT FOR THE PERIOD 2017-2020 AND FORECAST FOR 2021
($ IN THOUSANDS)

	Actual	Actual	Actual	Actual	Forecast
	2017	2018	2019	2020	2021
Net Sales	$9,690	$8,457	$11,104	$10,587	$12,140
Cost of Goods Sold	$5,406	$5,234	$7,600	$7,423	$7,807
Gross Profit	$4,284	$3,223	$3,504	$3,164	$4,333
Operating expenses					
Total distribution expenses	$708	$636	$561	$476	$525
Total selling expenses	$2,143	$2,211	$2,619	$2,388	$2,452
Administrative expenses	$731	$961	$900	$822	$727
Total operating expenses	$3,582	$3,808	$4,080	$3,687	$3,703
Operating profit	$702	($585)	($576)	($522)	$601
EBITDA	$1,151	($125)	($106)	($31)	$1,187

Table 3
REVENUE BY MAJOR SOURCE FOR 2020 (ACTUAL) AND 2021 (FORECAST)

	2020 (Actual)	**2021 (Projected)**
Fundraising	$ 3.61 MM	$ 4.33 MM
Wholesale-to-Retail National	$ 4.58 MM	$ 6.75 MM
DSD	$ 0.41 MM	$ 0.34 MM
Direct Retail & Misc.	$ 0.41 MM	$ 0.62 MM
Contract Manufacturing	$ 1.49 MM	$ 1.13 MM

ACT THREE: THE DROUGHT

By the end of 2020, Cullowhee is in financial trouble and has filed for Chapter 11 bankruptcy protection. The firm is highly leveraged due to the buyout of family members and the shift from the fundraising market to other channels. This change placed the emphasis on retail branding of Cullowhee's brands and private labeling efforts with major retail chains. Although making inroads, to date the projected performance expectations have not been met.

Cullowhee had established supplier relationships for its private label and branded product portfolio with both national and regional retail markets. It was hoped that this type of expansion would show continued growth. However, the final results were mixed. At the same time, Cullowhee's own brand showed some positive growth within regional retailers at approximately 10 percent per year since 2018.

In the new product area, the Company has developed a well-honed process for moving concepts to market in relatively short periods of time allowing Cullowhee to quickly respond to

market opportunities identified by customers. For example, the Company developed a premium confectionery product with a national retailer whereby the total timeframe for product conception from ingredient identification, flavor profile creation, to package/merchandising positioning to full production and first order fulfillment was five months.

While an impressive accomplishment from a management and operations perspective, sale volumes failed to meet overall expectations and profitability. When Cullowhee emerges from Chapter 11, it is looking for an investor. Based on the financial data in Table 2 Case (B), what would be an appropriate valuation of the firm?

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SHOULD APPLE REPATRIATE ITS INTERNATIONAL EARNINGS?

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CASE DESCRIPTION

The primary subject matter of this case involves international taxation of U.S. multinational corporations. Secondary issues include tax policy, corporate responsibility, macroeconomics, and public policy. The case has a difficulty level of two or higher. Business students at the sophomore, junior, or senior level can successfully complete this case. The case is appropriate for undergraduate courses in macroeconomics, microeconomics, international economics, tax, corporate tax, or corporate finance. The case is designed to be taught in 1-2 class hours and is expected to require up to 2 hours of outside preparation by students.

CASE SYNOPSIS

The case focuses on the strategic decision made by Apple and many other U.S.-based multinational firms to hold large cash balances offshore. In April 2017, Apple held approximately $230 billion cash offshore (90% of its $256 billion cash balance). Many other large, U.S.-based multinational firms also held tens of billions of dollars offshore, with some estimates putting the total cash held internationally by U.S. firms at approximately $2.5 trillion. The case explores the potential reasons for this strategic decision, focusing on the worldwide tax system used by the U.S., wherein corporations are taxed on income wherever it occurs in the world. This tax, however, is not triggered until U.S. firms bring foreign earnings back home, thus creating a perverse incentive not to repatriate foreign earnings.

The case presents the idea that Apple (and other firms pursuing similar strategies) are "unpatriotic" for taking advantage of the legal tax strategy of avoiding U.S. income taxes on foreign earnings by leaving those earnings overseas. The case also presents the idea that Apple is making prudent business decisions, consistent with its fiduciary responsibility to its shareholders, by delaying repatriation until tax rates are more favorable. Students are left to assess the arguments and form a conclusion.

INTRODUCTION

In April 2017, Apple, Inc. reported an astonishing $256 billion in cash on its balance sheet. More than 90% of that cash was held outside the United States, outside the reach of the

U.S. tax system ("Apple's Case for Tax Reform," 2017). To show the enormity of the Apple cash holdings, one writer calculated what Apple could purchase with its stash:

> *With the $250 billion sitting in its bank account, Apple could comfortably go out and buy Chevron, the second-largest U.S. oil company, at today's market price without borrowing a penny. The technology giant would still have $50 billion left to buy more than 700,000 Tesla model S electric cars or about four Gerald R. Ford class aircraft carriers (Heath, 2017).*

Apple sells iPhones, iPads, Macs, wearables and software services like the Apple app store, iTunes, and Apple Music. About 65% of its 2017 revenue were earned outside the United States (Apple, 2017a). Table 1 shows selected financial information about Apple for fiscal years 2016 and 2017. The total cash and marketable securities decreased from $268.9 billion to $237.6 billion for 2017.

Table 1
APPLE SELECTED FINANCIAL INFORMATION
In Millions
(Apple, 2017c)

	September 2016	September 2017
Net sales	$ 215,639	$ 229,234
Cost of sales	131,376	141,048
Gross margin	84,263	88,186
Net operating expenses	22,891	26,842
Earnings before income tax	61,372	64,089
Income tax expense	15,685	15,738
Net Income	$ 45,687	$ 48,351
Total cash and marketable securities	$ 268,895	$ 237,585

Table 2 shows the cash and marketable securities as of April 2017. This was Apple's second quarter in 2017. This is where the Apple reported the $256.8 billion in cash and marketable securities.

Table 2
CASH AND MARKETABLE SECURITIES APRIL 2017
In Millions
(Apple, 2017b)

Cash and cash equivalents	$ 15,157
Short-term marketable securities	$ 51,944
Long-term marketable securities	$ 189,740
Total cash and marketable securities	$ 256,841

Apple pays income tax in countries where it earns revenue. So, if Apple has sales in Germany, it pays income tax to Germany based on those sales. Since Apple is headquartered in the United States, transferring cash from foreign accounts to domestic accounts triggers a taxable event under U.S. tax law. This process of bringing foreign earnings into the United States is called "repatriation." For Apple, repatriating any foreign earnings would cause an additional U.S. tax of about 40% ("Apple's Case for Tax Reform," 2017).

This tax on repatriated earnings is the primary reason Apple holds large cash balances outside the U.S. While Apple has had the largest foreign holdings of cash in recent years, many other U.S.-based, multinational firms have substantial holdings as well. See Table 3 for the companies with the largest foreign cash. Some estimates put the total cash held by U.S. corporations overseas at $2.5 trillion (Apple's Case for Tax Reform, 2017).

Apple's tax strategy has been criticized as "not paying its fair share" in articles such as, "How Apple Sidesteps Billions in Taxes," from the *New York Times.* The article illustrates Apple's strategy of locating subsidiaries in lower tax states such as Nevada, instead of its home state of California, for the purpose of lowering its corporate taxes. To extend this internationally, Apple uses lower tax rates in Ireland, Luxembourg, the Netherlands, and Singapore to shift income away from the United States and its higher taxes. Apple famously started two subsidiaries and a factory in Ireland in the 1980's because of the tax benefits offered in that country (Duhigg & Kocieniewski, 2012).

Table 3
FOREIGN CASH HOLDINGS OF U.S. COMPANIES, APRIL 2017
(Linnane, 2017)

COMPANY	TOTAL CASH
Apple	$256 B
Microsoft	$113 B
Cisco	$ 62 B
Oracle	$ 50 B
Alphabet (Google)	$ 50 B

The article is careful to say that all the Apple tax strategies are legal, but within the article it contrasts the wealth of Apple and the financial troubles of a local community college:

> *A mile and a half from Apple's Cupertino headquarters is De Anza College, a community college that Steve Wozniak, one of Apple's founders, attended from 1969 to 1974. Because of California's state budget crisis, De Anza has cut more than a thousand courses and 8 percent of its faculty since 2008.*
>
> *Now, De Anza faces a budget gap so large that it is confronting a "death spiral," the school's president, Brian Murphy, wrote to the faculty in January. Apple, of course, is not responsible for the state's financial shortfall, which has numerous*

> *causes. But the company's tax policies are seen by officials like Mr. Murphy as symptomatic of why the crisis exists.*
>
> *"I just don't understand it," he said in an interview. "I'll bet every person at Apple has a connection to De Anza. Their kids swim in our pool. Their cousins take classes here. They drive past it every day, for Pete's sake.*
>
> *"But then they do everything they can to pay as few taxes as possible." (Duhigg & Kocieniewski, 2012)*

The article mentions some positives about Apple, such as the fact that the firm has over 47,000 full-time employees in all 50 states. It also describes the charitable contributions that Apple has made, including $50 million gifts to both Stanford University and an African aid charity. However, the end of the article returns the focus to the ailing college:

> *Still, some, including De Anza College's president, Mr. Murphy, say the philanthropy and job creation do not offset Apple's and other companies' decisions to circumvent taxes. Within 20 minutes of the financially ailing school are the global headquarters of Google, Facebook, Intel, Hewlett-Packard and Cisco.*
>
> *"When it comes time for all these companies — Google and Apple and Facebook and the rest — to pay their fair share, there's a knee-jerk resistance," Mr. Murphy said. "They're philosophically antitax, and it's decimating the state."*
>
> *"But I'm not complaining," he added. "We can't afford to upset these guys. We need every dollar we can get." (Duhigg & Kocieniewski, 2012).*

To some, the tax strategy of Apple and other large, multinational firms is consistent with the firms' fiduciary responsibilities to their shareholders. People with this view argue that repatriating income is entirely optional, and if there is no compelling economic reason for the firms to do so then they are making good business decisions by legally minimizing their U.S. tax liability.

To others, this strategy is a huge symptom of corporate greed. They argue, or imply, that the refusal to repatriate foreign earnings is unpatriotic and that firms are using tax loopholes to avoid paying their "fair share" of U.S. taxes. This argument implies a moral obligation on the part of these firms to pay more than they are legally required to pay.

INTERNATIONAL TAXATION BASICS

Countries generally use one of two international tax systems: the territorial system or the worldwide system. The territorial system generally only taxes domestic income. This system allows income from foreign subsidiaries to be wholly or partially tax exempt from home country tax. Under the territorial system, corporate taxes are paid by foreign subsidiaries in the foreign

country where the income is earned, and companies can repatriate foreign earnings with little or no additional taxation. Thus, there is not a tax incentive to keep the earnings in a foreign country because the cash can be repatriated with little or no tax effect.

The second system, the worldwide system, taxes domestic companies on their worldwide profits, regardless of where the profit is earned. There are some credits applied for foreign taxes paid, but the earnings in a foreign country are deemed to be "home country" income for income tax purposes. So, a U.S. company must pay U.S. taxes on its worldwide income. So, income in Germany would be subject to German income tax first and then on U.S. income tax if the earnings are repatriated to the United States.

The effect of this worldwide taxation is a great incentive for U.S. companies to hold foreign earnings outside the U.S. If the earnings are held in a foreign country, no U.S. taxes are due. When the earnings are repatriated to the United States, U.S. federal and state income taxes are triggered, with a maximum rate of about 40% (PwC, 2013).

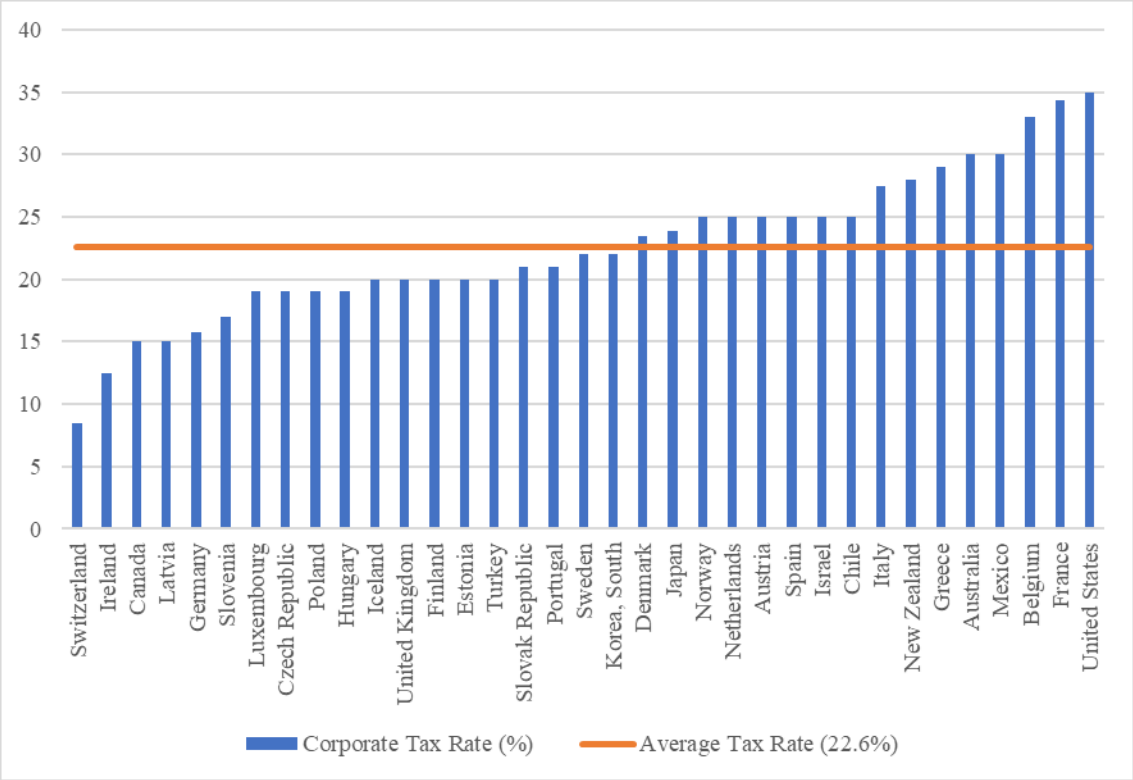
The Congressional Research Service summarized some key features of the U.S. tax system in this way:

> *The United States bases its jurisdiction to tax international income on residence. As a result, U.S.- chartered corporations are taxed on their worldwide income, but foreign corporations are taxed only on their U.S.-source income. Accordingly, a U.S. firm with overseas operations can indefinitely postpone its U.S. tax on its foreign income by operating through a foreign subsidiary. Using the same principle, U.S. taxes are deferred as long as its foreign earnings remain in the control of its foreign subsidiary and are reinvested abroad. The U.S. firm pays taxes on its overseas earnings only when they are paid to the U.S. parent corporation as intra-firm dividends or other income. (Marples & Gravelle, 2011, pp. 1-2)*

This incentive to hold cash outside countries that tax worldwide income is called the "lockout" effect. There is no such incentive for companies in countries with territorial tax systems. In April 2017, the United States had the highest corporate tax in the Organization for Economic Cooperation and Development (OECD) countries. The OECD is composed of developed countries committed to democracy and market economies. Because of the high tax rate in the U.S., more foreign earnings of U.S. companies are trapped overseas because of the lockout effect (PwC, 2013).

Figure 1

OECD CORPORATE TAX RATES 2017



In April 2017, 28 of the 35 OECD countries used the territorial tax system, so there is no lockout effect for these countries and there is no tax incentive to hold cash and investments outside the home country. Only seven of the OECD countries taxed worldwide income: the United States, Chile, Ireland, Israel, South Korea, Mexico, and Latvia. The United States had the highest corporate tax rate in the OECD at 35% in April 2017.

Mexico had a top tax rate of 30% in April 2017. The other worldwide taxation countries had top rates of 25% or lower. Ireland, the home of the Apple subsidiaries, had a top bracket of 12.5%. Figure 1 shows the 2017 corporate tax rates for all the OECD countries (Miller & Kim, 2017).

In an interview with Apple CEO Tim Cook, the Washington Post asked about the criticism of Apple's tax strategy:

> *What do you say in response to Nobel economist Joseph Stiglitz's comments on Bloomberg (television), where he called Apple's profit reporting in Ireland a "fraud"?*

I didn't hear it. But if anybody said that, they don't know what they're talking about. Let me explain what goes on with our international taxes. The money that's in Ireland that he's probably referring to is money that is subject to U.S. taxes. The tax law right now says we can keep that in Ireland or we can bring it back. And when we bring it back, we will pay 35 percent federal tax and then a weighted average across the states that we're in, which is about 5 percent, so think of it as 40 percent. We've said at 40 percent, we're not going to bring it back until there's a fair rate. There's no debate about it. Is that legal to do or not legal to do? It is legal to do. It is the current tax law. It's not a matter of being patriotic or not patriotic. It doesn't go that the more you pay, the more patriotic you are.

And so what we've said — we think it's fine for us to pay more, because right now we're paying nothing on that and we leave it over there. But we — like many, many other companies do — wait for the money to come back.

In the meantime, it's important to look at what we do pay. Our marginal rate, our effective rate in the U.S. is over 30 percent. We are the largest taxpayer in the United States. And so we're not a tax dodger. We pay our share and then some. We don't have these big loopholes that other people talk about. The only kind of major tax credit that we get is the R&D tax credit, which is available to all companies in the United States. That's important to know. The second thing I would point out is we have money internationally because we have two-thirds of our business there. So we earn money internationally. We didn't look for a tax haven or something to put it somewhere. We sell a lot of product everywhere. And we want to bring it back, and we've been very honest and straightforward about that. (McGregor, 2016).

TAX HOLIDAYS

It is important to note that when Tim Cook said, "we're not going to bring it back until there is a fair rate," that was not a statement based on a fantasy about future lower tax rates. The U.S. has periodically enacted special "tax holidays" on repatriated earnings, under the theory that temporarily lowering the rate will bring foreign-held cash flooding back into the U.S. and create a stimulatory effect on the economy. The most recent one-year tax holiday was part of the American Jobs Creation Act of 2004, when the top rate on repatriated earnings was slashed to 5.25% (Marples & Gravelle, 2011). Table 4 shows the stunning growth of the Apple cash and marketable securities.

The actual economic impact of these temporary tax cuts is hotly debated, with some arguing that they do provide meaningful stimulus for the economy, while others argue that the stimulatory effect is not large enough to offset the lost tax revenue. What is not in debate, however, is that the mere possibility of a future tax holiday provides a dramatic incentive for firms to delay repatriation.

Table 4 APPLE INC. CASH AND MARKETABLE SECURITIES	
YEAR	TOTAL CASH (IN MILLIONS)
2006	$ 10,110
2007	$ 15,386
2008	$ 24,490
2009	$ 33,992
2010	$ 51,011
2011	$ 81,570
2012	$121,251
2013	$146,761
2014	$155,239
2015	$205,666
2016	$268,895
2017	$237,585

TAX POLICY

A country's tax policy can affect its economy both positively and negatively. A well-designed tax code can make it easy for companies (and individuals) to comply, while raising sufficient tax revenue for the country. The tax system of a country also affects foreign investment and economic growth. People, companies, and their capital are mobile in the long term. When investors seek investment opportunities, they seek higher returns at reasonable risk levels. A complicated tax system with high rates can increase costs and therefore reduce returns and slow economic activity.

In the global marketplace, countries compete for corporate investment and the jobs created by that investment. This competition is on a wide variety of dimensions, including quality and cost of labor, governmental and economic stability, and the regulatory and tax environment, among many others. Countries with the right combination of competitive factors will attract more international capital, thus producing more economic growth in the country and therefore increasing tax revenues, all else equal.

The Tax Foundation publishes a study on international tax competitiveness. In that study, the U.S. is ranked 31 of 35 OECD countries in tax competitiveness (Pomerleau, 2017).

> *A competitive tax code is one that keeps marginal tax rates low. In today's globalized world, capital is highly mobile. Businesses can choose to invest in any number of countries throughout the world in order to find the highest rate of return. This means that businesses will look for countries with lower tax rates on investment in order to maximize their after-tax rate of return. If a country's tax rate is too high, it will drive investment elsewhere, leading to slower economic growth. In addition, high marginal tax rates can drive tax avoidance. (Pomerleau, 2017).*

SHOULD APPLE REPATRIATE ITS INTERNATIONAL EARNINGS?

Apple repatriating its overseas earnings is an economically complex and potentially emotional issue. By repatriating the cash held abroad, Apple would trigger additional taxes that would otherwise be avoidable, resulting in a tax bill of approximately $92 billion ($256 billion in cash times 90% held offshore times 40% tax rate on repatriated earnings). This would allow Apple to invest or spend the remaining $164 billion domestically, while potentially currying favor with politicians and with consumers who believe it is unethical to keep that cash overseas.

On the other hand, it could be very hard for Apple to justify paying an "optional" tax of $92 billion to its shareholders, particularly considering that Apple already paid more U.S. taxes than any other corporation. Furthermore, by delaying repatriation, there is a reasonable probability that Apple could bring that cash back to the U.S. at some future date at a substantially lower tax rate.

This is a real concern for Apple in 2017. The tax rules provide incentives for keeping cash overseas. There is political pressure to repatriate to pay taxes now. Other technology firms that hold cash overseas may continue that policy. Apple would have a competitive disadvantage if it paid taxes now. Is waiting for a potential tax rate cut a good strategy?