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

Al Tilooby, Austin Peay State University
Kristy L. Cunningham, Austin Peay State University
Miranda L. Lowell, Austin Peay State University
Vikkie McCarthy, Austin Peay State University

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

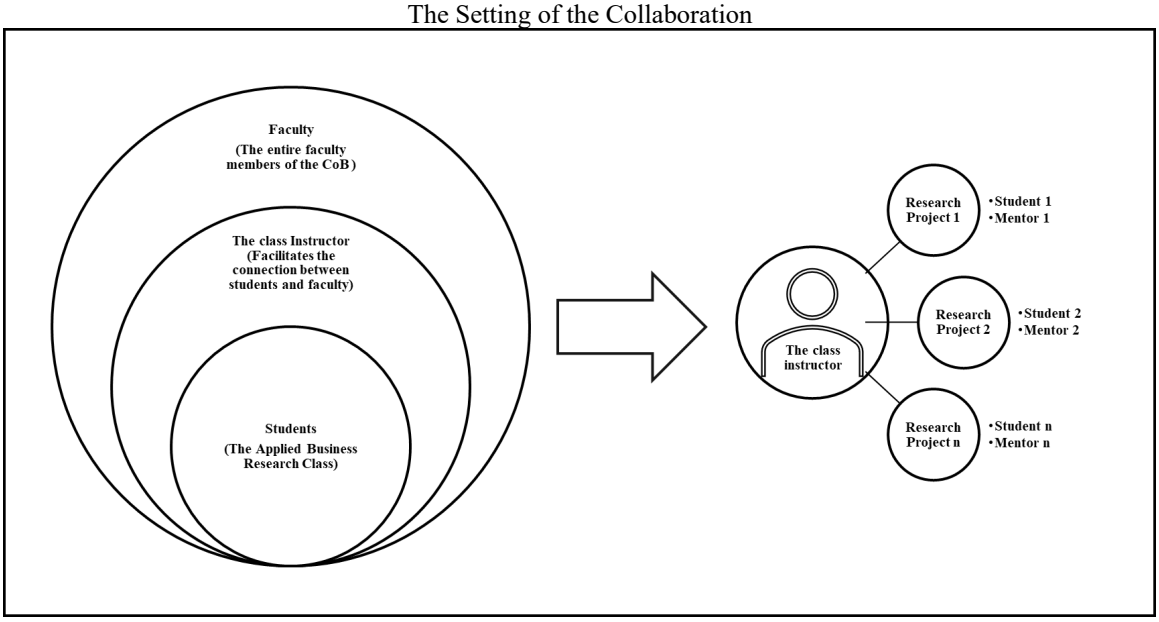
The context of the model revolves around the Applied Business Research course (MGT 5000) taught asynchronously online in the CoB at Austin Peay State University (APSU). This eight-week masters-level course aims to train students how to write a research proposal for a potentially presentable or publishable 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.

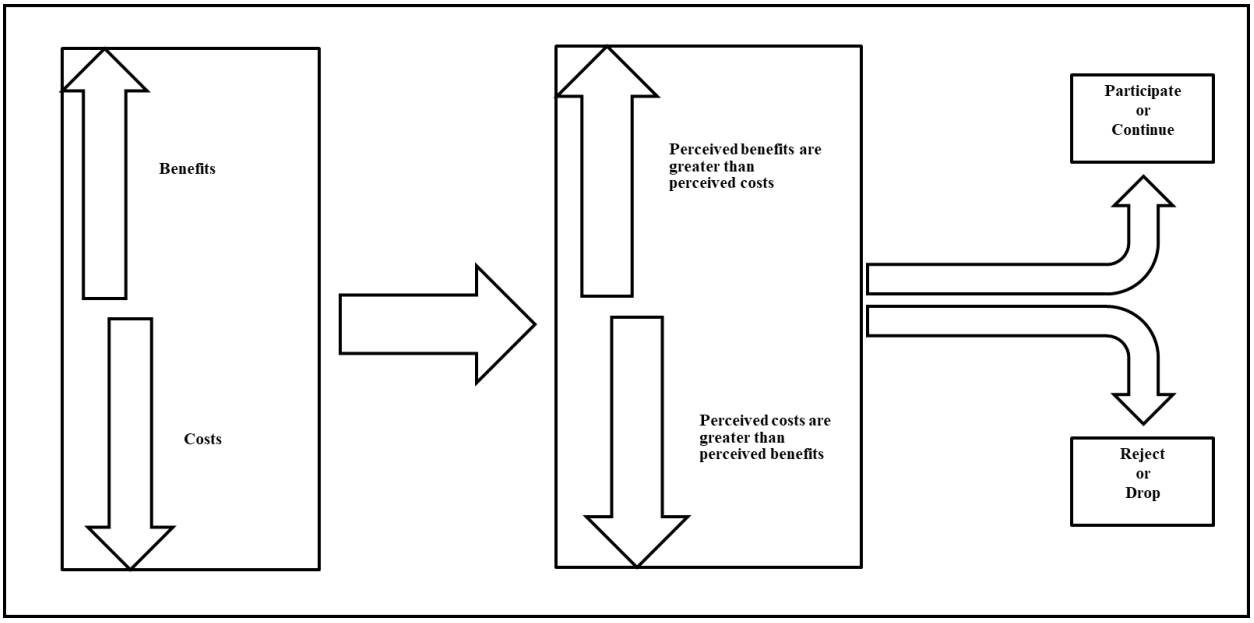
SOCIAL EXCHANGE THEORY

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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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.

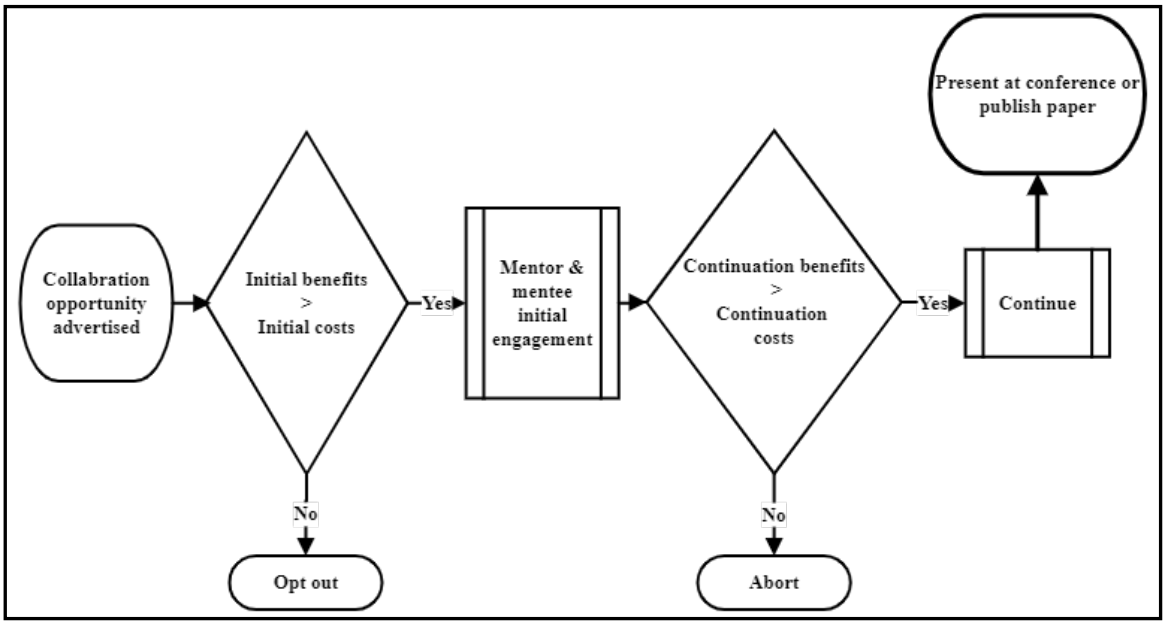
Some mentees suggested that the rules of engagement should be further clarified. Many students expressed the need to increase the duration of the course or split the deliverables over two terms. Another mentor wished to poll the students to identify those interested in pursuing a doctoral degree and 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



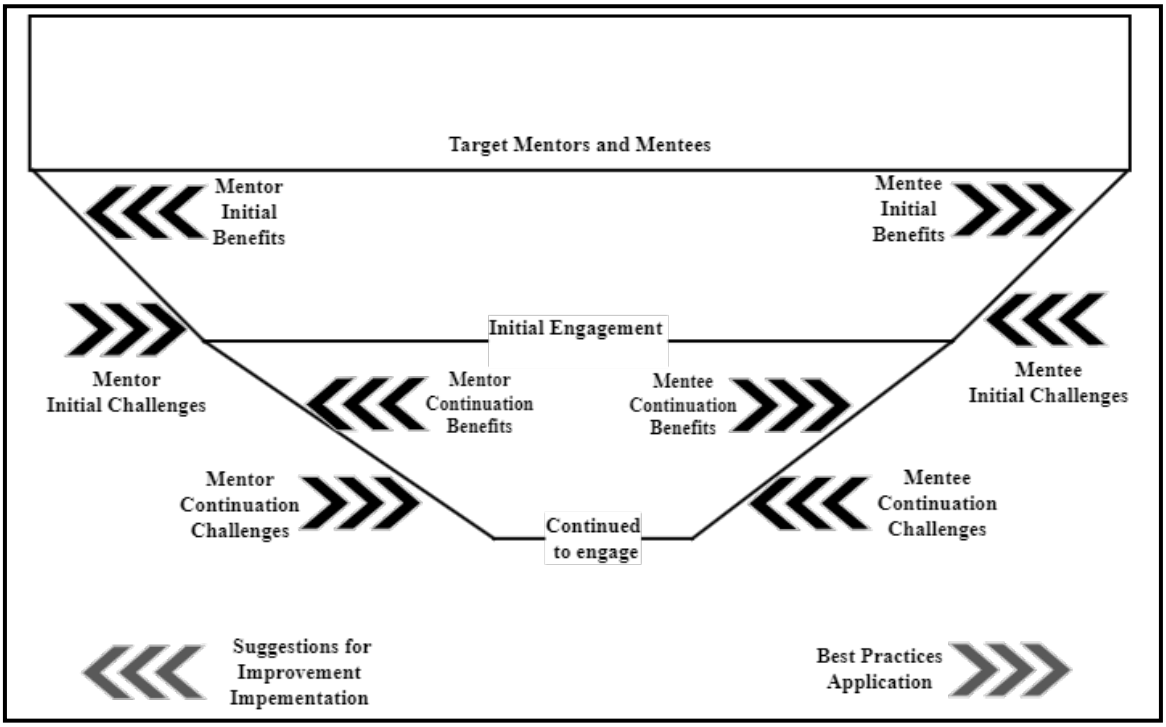
There are two decision junctures for both the mentor and mentee (Figure 3). Initially, each mentor and mentee weigh the costs versus the benefits of entering a collaborative relationship. Their assessment is based on a preconceived a priori knowledge of what would be involved in the relationship and 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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