Demystifying Research: Graduate Student Learning from Three Out-of-Class Research Projects

Phyllis McCluskey-Titus, Ed.D.
Department of Educational, Administration and Foundations • Illinois State University

Phyllis McCluskey-Titus is Professor of Higher Education and Student Affairs Administration in the Department of Educational, Administration and Foundations at Illinois State University. Her research interests relate to improving teaching and student learning inside and outside the classroom. She has led three out-of-class research projects and published the results of these research studies with her master's and doctoral students. Before joining the faculty in 1999, she was a student affairs administrator for 18 years and remains actively engaged with student affairs professional associations.

Anne McDowell
Office of Admissions • Lincoln College – Normal

Anne McDowell is an admissions counselor for the ABE (Accelerated Bridge to Education) program at Lincoln College –Normal. She is a two-time alumni of Illinois State University having earned her master's degree in 2015 and bachelor's degree in 1988. Her interests include continued involvement in research as well as strategic planning processes in higher education. Her goals include actively contributing to the student affairs profession through volunteerism, professional association involvement, and pursuit of lifelong learning opportunities to strengthen her expertise in the field.

Sean Creedon
Office of Residential Life • Loyola University New Orleans

Sean Creedon works at Loyola University New Orleans as a Community Director in the Office of Residential Life. He completed his undergraduate work at Illinois State University in 2010 where he received a BA in Social Science Education. After teaching for three years, he went back to school to pursue his master's degree in College Student Personnel Administration at Illinois State University. He stays actively involved in the field of student affairs through professional organizations and service trips.

Erin Kuntz
College of Business and Management • University of Illinois Springfield

Erin Kuntz is an academic advisor in the College of Business and Management at the University of Illinois Springfield. She holds a Bachelor of Arts degree in Languages, Literature, and Cultures from Southern Illinois University Edwardsville and a Master of Science degree in College Student Personnel Administration from Illinois State University. She hopes to continue pursuing different research endeavors in the future.

Skylar Guimond
Dean of Students Office • Illinois State University

Skylar Guimond works in the Leadership and Community Connections unit of the Dean of Students office at Illinois State University. He has earned a master's degree (2015) and a bachelor's degree (2008) from Illinois State University. He started working in student affairs at Heartland Community College in the Student Engagement Office in 2010. This is his first out-of-class research project, but he has aspirations on conducting more research involving Leadership Development and Tabletop Gaming.

Brandon Hensley, Ph.D.
Department of Communication & Organizational Leadership • Millikin University

Brandon Hensley is a Lecturer in Communication at Wayne State University. Hensley completed his Ph.D. in Educational Administration & Foundations from Illinois State University in 2016. He has presented at dozens of international, national, and regional conferences in areas of communication studies and higher education. He currently serves as a Division Co-Chair and Associate Council member of the Mid-Western Educational Research Association (MWERA).

This qualitative research evaluated what students gained from developing and conducting research as a part of a team outside of their structured curriculum. The research revealed initial motivations, attitudes and expectations of graduate student researchers and their perspectives about conducting research after their projects were completed. Both intrinsic and extrinsic benefits were noted by participants. The article also provides implications for teaching and learning focused on how graduate students can learn from active involvement on research teams.

Introduction

"What I love most about research is that there is no final destination, there are always new things to study, new ways to measure it, and new skills for researchers to develop" (Kaitlin B., p. 4).

The Scholarship of Teaching and Learning (SoTL) can be defined as the "systematic reflection/study of teaching and learning made public" (http://sotl.illinoisstate.edu/about/). In order to promote SoTL research opportunities on campus, small grants are awarded at our university annually. Graduate students volunteered to participate in a SoTL research project that took place outside of a required class. This initiative was the third out-of-class research project offered in a student affairs graduate program. The first two projects were assessments of the effectiveness of the graduate program and student learning through different curricular and co-curricular experiences in the program. This third project was a study of the graduate students' learning from participation in these out-of-class research projects. Four graduate students volunteered for the third research project knowing they would get experience writing a grant, completing training about human subjects in research and an IRB protocol, developing research methods, conducting interviews, analyzing qualitative data, making presentations at professional meetings, and writing for publication. It was an opportunity to test the idea that "students learn when they engage in their academic materials and make meaningful connections with their faculty and peers that help them apply the information" (Holzweiss, Joyner, Fuller, Henderson, & Young, 2014, p. 312).

The purpose of this research was to understand what graduate students gained from their experiences developing and conducting assessment/research outside of the structured curriculum and how the out-of-class research experience contributed to and/or enhanced their learning within a graduate program. This research is significant and makes a

unique contribution to the SoTL literature because little is known about how graduate students involved on research teams with a faculty member learn from the process of conducting research.

This study was guided by the following research questions: What did graduate students gain from their experiences developing and conducting assessment/research outside of the structured curriculum that contributed to and/or enhanced their learning within a student affairs master's degree program? What are the implications for teaching and learning about research that could be applied to working with graduate students?

Literature Review

Recent literature points to the myriad of benefits gained by students and faculty through out-of-class research team participation. These benefits include: acquiring and honing research skills (Kardash, 2000); meeting experiential learning objectives across disciplines, (Ryser, Halseth, & Thien, 2007); increasing interpersonal competence in group learning (Panelli & Welch, 2005); and creating opportunities for both faculty and students to present and publish research findings (Galbraith & Merrill, 2012; Janusik & Wolvin, 2007; Landrum & Nelsen, 2002).

Although the focus of this article is *graduate* student research involvement, Lei and Chuang's (2009) statement, directed toward undergraduates, applies: "Conducting and publishing original research under close supervision of a faculty member is a valuable experience for ... students regardless of their academic discipline" (p. 232). Not only can out-of-class research teams help engage students in courses (Micari & Pazos, 2012), but can also assist in fostering positive and productive relationships (Cox, McIntosh, Terenzini, Reason, & Quaye, 2010; Lechuga, 2011).

Out-of-class research teams have been shown to provide helpful "extra-classroom" communication with faculty that many students miss (Cotten & Wilson, 2006; Fusani, 1994). These opportunities broaden students' understanding of the nuances of research, as well as strengthen their affiliation and commitment to their institution (Ryser et al., 2007; Wayment & Dickson, 2008). In this article, we argue that carefully conceptualized research team experiences that build an active and engaged team of learners might be more important than classroom learning experiences or other assignments about research. Bergquist (1998) aptly observes, "New conditions force people to think in new ways and break out of old thought patterns" (p. 97).

Many suggest that forming well-planned student-faculty research teams is an impactful way of introducing students to the multifaceted process of research— delving into literature and forming questions to conducting research, analyzing findings, writing, revising, submitting, and presenting. As Janusik and Wolvin (2007) conclude,

> ...there are some clear benefits for forming a research team as opposed to a traditional learning community…The students on the team have perceived a stronger connection to the university and the faculty, and they feel stronger in their ability to work as part of a team. Equally important, the students perceive themselves as co-constructors of knowledge...(p. 182).

Graduate students who engaged in research opportunities outside of class reported learning more about the process of conducting research and research methods, current knowledge about the topics being studied, and that their process of learning-by-doing was active and engaging (Jiang and Roberts, 2011). Searight, Ratwik, & Smith (2010) described additional skills research allowed students to obtain including, "building a sense of competence and for helping them feel that they were 'professionals'" (p. 111).

The Scholarship of Teaching and Learning (SoTL) has been growing in interest since the early 1990s and is generally defined as teaching-as-research that aims to improve student learning (Schram & Allendoerfer, 2012). For graduate students engaged in SoTL, there is compelling evidence that exposure to research can enhance learning. According to

Schram and Allendoerfer (2012), SoTL "has the potential to train graduate students to be reflective teachers, gain research experiences, and integrate their teaching and research skills" (p.8). Weisblat and Sell (2012), indicate that, "In the 21st century it is imperative that we shift our learning and teaching paradigm from an individual effort to an inclusive one comprising shared experiences with the collective and with multiple individual contributions to the greater group" (p.66). When describing unique opportunities for involving students in research, McKinney, Jarvis, Creasy and Herrmann (2010) state:

> Perhaps one of the most intriguing learning experiences for students concerns partnerships with faculty where the students can serve on a research or project team or work independently under the mentorship of a faculty member to design and implement their own research or project. Not surprisingly, when students seize such opportunities, they tend to find these experiences highly motivating and often demonstrate improvements in basic research and scholarly skills (p. 83).

Engaging in research opportunities, especially those that foster more student-faculty collaboration, allow students to find a "sense of freedom and scholarly independence" (Searright, Ratwik, & Smith, 2010, p. 106) throughout their time in college.

Methodology

In order to examine the impacts of participation in out-of-class research studies and the participants' perceptions of their learning from these projects, the decision was made to utilize qualitative data collection methods. Bartsch (2013) states that "perhaps the most important construct in SoTL research is student learning" (p. 20). The research group felt that the best way to better understand the learning from involvement in these projects was to examine the stories told by participants. Qualitative data "allows understanding of how experiences are interpreted and what meaning people have generated to those experiences" (Holzweiss, Joyner, Fuller, Henderson, Young, 2014, p. 313).

Participants

There were twelve graduate students involved with the study who were both researchers and research participants, including eight graduates from two previous out-of-class research projects, four current CSPA graduate students, and the faculty member for a total of thirteen people on the research team. The four current graduate students volunteered to be a part of the project after responding to an email sent by the faculty member offering the opportunity for involvement to all currently enrolled students in the graduate program.

Each researcher completed the CITI: Human Subjects Research Course prior to submitting the IRB for approval. To aid in learning, the IRB was broken down into sections. Each section was then assigned to a researcher. Once complete, each portion of the IRB was presented to the entire group for review and revisions. Throughout the data collection phase, names of research participants were not used. The primary investigator assigned each participant a unique number to identify their specific responses. Only after our data were collected did we insert names into our final written report. It was decided that because each researcher was also a research participant, pseudonyms were not necessary in our final report.

Data/Instruments

Data were collected through two different qualitative methods; graduate student participants/research team members each wrote a reflective essay and were interviewed by telephone. Prompts were provided for the reflective essays in order to gain information about level of involvement and expectations of being involved in the research, connections to classwork in the master's degree program, benefits received through participation in the research, and attitudes toward

research pre- and post-involvement. The eight CSPA program alumni had all completed out of class research projects prior to writing the essay and being interviewed. The four current graduate students were in the midst of this out-of-class project when they wrote essays and were interviewed by members of other research teams. There was no attempt made to distinguish the experiences of "veteran" research participants who were program graduates and the "newer" researchers who were conducting this study as their out-of-class research project.

A second method of data collection involved conducting one-on-one telephone interviews with other research participants from different projects in order to expand on expectations of the research project , learning outcomes gained through participation, relationship of the project to graduate work, value and importance of being part of a research team, and influence of the experience on future or current careers. These interviews were audio recorded, and each member typed a word-for-word transcript of the interview they conducted. Through these two data collection methods, participants shared their perceptions about how involvement in this type of research shaped or contributed to meeting learning goals in their graduate program, in the their professional field, and influenced the pursuit of additional research opportunities.

Data analysis

It was determined that an interpretive phenomenological analysis (IPA) method would be utilized as this study explored a phenomenon rather than attempted to develop a theory. Callary, Rathwell, Young (2015) say of this method, "IPA extends simple description and makes sense of participants' lived experience by developing an interpretive analysis of the description in relation to social, cultural, and theoretical contexts" (p. 63).

For the analysis, we started by individually reviewing all the essays. This aligns with IPA which dictates that "research questions are broadly constructed to allow for unanticipated themes to emerge" (Callary et al., 2015, p. 64). Then we reviewed all the interview transcripts, with each transcript being read by two different research team members. Then the interview data were analyzed and the team noted that the interviews expanded on the topics discussed initially in the reflective essays. By applying the themes from the reflective essays, the interview transcripts were analyzed, noting additional themes that emerged in the interviews.

During data analysis, broad themes emerged including expectations graduate student participants had when deciding to participate in the projects, motivation to join the research team, impact of relationships on the work, and benefits of participation. We found that participants entered this project with attitudes and expectations, that through the process they developed new perspectives and unexpected outcomes and through involvement in this process "demystified" the idea that one has to be "an 'expert' in order to seek out answers to the big questions that can have an impact on the work we do" (Anne, p.1).

Limitations

In this study, the research team well as the research participants were all graduate students in a student affairs master's degree program, limiting the scope of the research to one narrow applied academic discipline that is more practice-focused. Graduate students in other academic disciplines may have different results based on the research emphasis in their field of study. The participants' experience with research also relied on the experience, knowledge and guidance of only one faculty member acting as primary investigator who had done previous research, was familiar with the process, and was able to mentor the research participants in that particular project. The undergraduate background of the participants was mentioned in some cases, but not utilized as a key factor in this study. The varying levels of research involvement during the undergraduate degree could have an effect on the attitudes and expectations about research at the graduate and professional level.

Results

Attitudes and Expectations

Throughout the data analysis, the research team identified attitudes and expectations graduate students had prior to their involvement with the research projects including hesitancy to participate, belief that research was done by others, and that conducting research would be time consuming and difficult. One attitude frequently identified by the participants was a hesitation for becoming involved in research. Many graduate students identified with Anne who said, "Research is something best left to the experts" (p. 1). Erin agreed and added, "I always thought in the back of my mind that research was a distant, foreign concept and was only conducted by people who were way smarter than I would ever be" (p. 2). Similarly, Kaitlin B. talked about there being an invisible barrier to research saying, "An out-of-class research project always seemed to me like something other students could do, it didn't even feel like something I had access to" (p. 1).

A number of the participants shared their belief about how much extra work a research team would require. Kaitlin K. discussed how her expectations for research differed from her experience with the first assessment project. She said, "The pre-conceived idea that this [research] would be just like any other class assignment was totally incorrect. From the very beginning, Dr. Phyllis encouraged us to truly take ownership of the experience and included us on every step of the project..." (p. 2).

Participants also identified expectations they had for their involvement. These included understanding research and assessment, creating relationships with faculty and team members, and gaining career benefits. The ability to truly understand research was one expectation expressed by participants. Adam explained, "The biggest expectation I had was to become proficient in assessment...to not just be a part of the process, but to truly understand the reasoning and importance of assessment" (p. 3). Janelle added, "I knew that getting involved in this research team would allow me to better understand assessment and have a working knowledge base of how to develop a research project from the onset" (p. 1). Still Jeff simply wanted to "learn without having a grade attached to it" (p. 2).

One expectation that was important for participants was the opportunity to create relationships with faculty, staff, and other team members outside the classroom. Kaitlin B. described, "I was looking forward to an opportunity to spend more time on campus and to connect with my [team] members and professor in a different way than in a classroom environment" (p. 1). Another student, Whitney, expected to connect with her team members through involvement in the research process saying, "My fellow [team] members were good people who I was constantly learning from in class and I assumed I would continue to learn from them while conducting this research" (pp. 1-2). Ramo predicted he would create a stronger relationship with the faculty member leading the team. He said, "I hoped to spend more time with Dr. Phyllis and glean knowledge of the field from her" (p. 2).

Another presumption focused on career aspirations. Ramo expressed that he would use this research to "increase my credibility in the field" (p. 1). Others had learned that research and assessment were becoming a 'hot topic' in higher education and wanted to be knowledgeable of it. Erin said, "Seeing how important collecting data was for sustainability and funding leverage really solidified the importance of knowing how to conduct research in the best way possible" (p. 1). Another participant, Jeff, had more direct career motivations and said, "I was really intrigued with how it would help me in accomplishing the next step in my career: attaining the elusive first job" (p. 1). Several participants also spoke of their hopes that this research would help them in their future educational aspirations. Kaitlin B. wrote, "With the interest of pursuing my PhD., I believe it is important for me to learn more about the entire research process and not just the completed results" (p. 2).

Overall graduate students showed a hesitation about conducting research and wondered how out-of-class research would differ from learning inside the classroom. They also wanted to understand the research and assessment process, create relationships with team members and faculty, and advance their careers. Janelle summed this all up by saying, "I truly believe that my involvement in this out-of-class experience changed the trajectory of my graduate school experience and my career" (p. 5). Kaitlin K. continued by saying that involvement on the research team was a way of "helping me make sense of my formal education" (p. 3).

New Perspectives and Unexpected Outcomes

There were both expected and unexpected outcomes as a result of participation in these out-of-class research projects. Every participant in the three projects had certain expectations and perceived benefits including understanding the process of conducting assessment and research, having an opportunity to work closely with faculty and peers outside of the classroom, and giving-back or contributing to the profession. Many of the graduate student researchers said their expectations were met or exceeded as a result of participation in these research project teams.

Experiences, such as how to conduct a research project, work with team members, analyze data, present at conferences, and write for publication, were expected. "The knowledge of how thorough and meticulous assessment research can be was a huge professional benefit to me" said Jeff (p. 3). Anne echoed, "On a personal level, it has solidified for me that I have the ability and desire to be a lifelong learner and the benefits of taking professional risks" (p. 3). Still others recognized benefits that went beyond those skills directly related to research and assessment. The project provided opportunities to take what was learned and make it public, which is a foundational component to the Scholarship of Teaching and Learning. "I also think the presentation experience that goes along with this research is another benefit I am gaining in this experience. I have only been to a few conferences in my time in [the field], but the ability to present at a conference has been a goal for me" (Skylar, p. 3).

What proved to be most interesting were the unexpected outcomes that were mentioned including adding a new lens of assessment in our profession, leading an office assessment, and igniting a passion for research that was previously dormant. There were instances where participants reported utilizing skills and knowledge in their current professional roles that they had learned from their participation in the research team. This new "assessment lens" was noted by two of our team members. One researcher in the first assessment project stated that, "I also now find myself constantly assessing office functionality, organization, and programs; this started during my assistantship while in [my] program, and I still use my 'assessment lens' in my professional career today" (Whitney, p. 3). Development of an "assessment lens" was a new concept that was not anticipated. This was also validated by a current professional who noted that, "My supervisor often looks to me when we think about goals for our office and where or what we should be looking at through an assessment lens" (Adam, p. 5).

Another unexpected outcome reported was the ability to lead assessment efforts in their offices. One participant noted that, "Another large impact has been my comfort with assessment and research moving forward, which has made me a bigger asset within my office. By and large, my coworkers don't have much experience in assessment and research..." (Kaitlin K., p. 3). An advantage of conducting SoTL research is the ability to use results to strengthen the researcher's teaching. These researchers are not classroom teachers, but serve as educators through their professional roles as administrators.

All of these research participants have demonstrated how involvement in these different research studies have helped shape their professional opportunities. In some cases, they were able to use the research findings to help them in their current jobs. Ramo mentioned that "I also have been able to use the actual outcomes of our study in my current work. Because the research deals with graduate students and where learning takes place, it puts new emphasis on how I supervise my grad student and how I help her develop competencies" (p. 3).

Instead of simply taking away tangible skills and knowledge about how to conduct research, we discovered that participants had actually formed a whole new perspective about research. This was an unexpected outcome, but further demonstrated how beneficial outside research projects were. These research studies sparked an interest in research overall and in many cases, graduate students wanted to (and some have already) continue their involvement in research. For example, Whitney stated "I believe being a part of this out-of-class research gave me a new perspective… in the rest of the academic work I would complete in my graduate program as well as the professional work I would complete in my graduate assistantship and practicum" (p. 3). Another graduate student noted, "I can honestly say that my attitude toward research and assessment has been transformed as a result of this experience...I never saw myself as one who would engage in research opportunities because I thought it was something that only clinicians and professors pursued. After this experience, I know this is not the case" (Anne, p. 3-4).

From the data collected, it seems this shift in opinion about research as negative or something that only faculty engaged in has provided a heightened awareness and the process of research or assessment did not stop with one project. For instance, Sean mentioned "This project has definitely changed my view on research as a whole...Being part of this team has sparked an interest in research for me that I plan to continue. Without this experience, I would still have a somewhat negative view of research" (p. 4).

Another important and unexpected discovery was that participation in these research projects contributed to a greater investment in the field and research education. "Based on this extensive out-of-class experience, I have gained such a large appreciation for research and assessment and hope to continue to give back to the field in these ways" (Janelle, p. 5). Adam mentioned, "Having worked on conference proposals and presenting to peers is a way that I see to give back to the profession and share my learning with others" (p. 5). Others noted that their work on the research projects allowed them to understand more about their field and how the process could enhance their overall professional knowledge. Sean stated that, "Our goal with this project was to see first-hand the benefits of participating in outside research. We wanted to show the [professional] community (and higher education as a whole) how valuable of a learning opportunity this is/was for the students involved" (p. 3).

By being involved in these research processes, the graduate students were able to gain valuable skills that were expected outcomes of participation in research. However, what proved to be most beneficial was understanding the unexpected changes in overall attitudes towards assessment, the ability and confidence to lead an office research project, a newfound "assessment lens,' and a richer understanding and appreciation for research and its value in higher education.

Implications for Teaching and Learning

Through this research, we have identified an array of implications for teaching and learning. These include engaging active learning, supplementing in-class learning, creating positive relationships to encourage persistence, and recognizing intrinsic and extrinsic motivations.

Engaging Active Learning and Getting Students Involved

David Kolb's (1984) process of experiential learning was a model on which this out-of-class research process was developed. Since 2012 there have been three out-of-class research projects where graduate students were actively engaged. As team members, graduate students had the opportunity to participate in all aspects of research from conception to dissemination. These applied projects either assessed learning or evaluated a graduate program using nationally normed competencies or standards. To give team members a basic overview of a process, weekly meetings were held with team members that consisted of training or learning about a specific aspect of the research process from the faculty member, and then assignments were made on a part of the research project for the following week.

Participants had the chance to ask questions and draft a section on their own. The next week, assignments were reviewed and edited by the group and reassigned for the following week. This models Kolb's (1984) process of offering feedback and allowing students to reflect on what they did and where they needed to improve or change their work. The use of the entire team as peer editors/reviewers also gave the opportunity to serve as educator and for students to learn from each other. In this way, everyone was able to be actively involved in each aspect of the research, and could then conduct research on their own or as a team member.

Supplement In-class Learning

Participants in this research project cited that becoming involved bolstered their in-class learning in two different ways, by better understanding the process of research or by applying information into their content courses. Whitney noted how understanding research processes helped her. "Being part of this out-of-class research project gave me a new perspective and even a 'leg-up' in the rest of the academic work I would complete in my graduate program…" (pp. 2-3). Another graduate student agreed, "While I may not have gained a great understanding of assessment in my classroom experience, this out-of-class research supported the learning I was doing in the classroom and I therefore believe I have a more holistically developed set of skills because I was able to apply the theory of research to practice and enhance my skills" (Catherine, p. 2).

Other graduate students noted how their research project enhanced their subject knowledge. Kaitlin B. offered, "Something that was neat about this research project in particular was that the content tied in so closely with material we were discussing in several of our classes" (p. 2). Kaitlin K. added, "For someone who would have been totally lost in research class without this [out-of-class research experience], this study helped me immensely" (p. 3). Adam summarized his experience, "After this project, and even during it, I incorporated major take-aways and little snippets of what I had learned into my coursework. I really do think this project amplified my learning in the classroom and was extremely evident in our capstone course" (p. 5).

Students were Extrinsically Motivated, but Gained Intrinsic Motivations

None of these projects were required for coursework or had a grade associated with them. As researchers, we wanted to understand the motivations behind this out-of-classroom involvement. When analyzing both the essays and interview transcripts, it was clear that the initial motivations for being involved in all three research projects were extrinsic in nature. Graduate students noted that they would gain valuable experience to help them in their careers, include the project on their resumes, or allow them to stand out during the job search. All of these were expected motivations. However, after analyzing the data from the essays and interviews, we noticed a clear shift in what was gained from involvement in the research projects. As expected, the aforementioned extrinsic motivators were seen as benefits, but graduate students noted newfound, intrinsic benefits that were not predicted prior to participation in the projects. For example, "Assessment showed me a new way of thinking and really taught me to consider assessment when thinking about anything students affairs related" (Adam, p. 4). This type of intrinsic benefit of a shift in thinking was not predicted. "This project showed me the benefits of such work and how it can impact not only my professional performance but also the students and programs I work hard to improve. I learned that when done correctly, research data could be used to greatly improve parts of my job" (Jeff, p. 4). These newfound benefits highlight the importance of clarifying the difference between intrinsic vs. extrinsic motivations and benefits. When introduced correctly, out-of-class research projects can have benefits beyond personal gain, and having students discuss that was one of the most exciting findings from our research.

What actually demystified the research process for students?

Based on the qualitative responses, participants were able to articulate how beneficial their involvement in out-of-class research projects had been. However, going into the projects, many of the then-graduate students were unsure of their ability to conduct publishable and/or presentable research. What changed their mind about the research process?

Our conclusion about what demystified this process rests in two elements; the relationships formed with the professor, and creating a team of peers with whom to collaborate. Starting with the relationship with the professor, the literature states, "Research has demonstrated that faculty-graduate relationships play an integral role in shaping graduate students' research training, their professional identity, and career dedication in addition to providing socialization into academe (Lechuga, 2011, p. 759). This quote validates graduate students' claims that the relationship with the professor was instrumental to their learning experiences.

In our research, students felt more at ease working with their professor, specifically one who was an experienced researcher. Skylar put it, "...I knew that I would be working with someone who has done research before and who has also assisted other graduate students through a very similar experience. Any project where I could work closer with a person with as much experience in our field as our professor would be great experience for me" (p. 1). Another graduate student reflected the same sentiment, saying "I learned a great deal from Dr. Phyllis in the classroom, but knew there was more to be gained by having the opportunity to interact with and learn from her outside of the classroom" (Kaitlyn K., pp.1-2). Literature supports these statements; "There is general consensus among scholars that faculty-graduate student mentoring relationships are a significant aspect of the graduate experience that fosters student success" (Lechuga, 2011, p. 757).

Along with the relationship with the professor, another integral demystifying element graduate students identified was working with their classmates, friends, and peers. "I knew that through this project I would get to work with my friends/cohort-mates who would make this experience fun and feel less like work. We definitely did work, but was a lot more enjoyable knowing that the people I was going to be working with were those I could rely on to pull their weight in the group and who also had high standards of work" (Adam, p.2). Skylar confirmed that working with a friend helped motivate his involvement and would lead to a greater enjoyment of the project, "When we both were asked to be a part of the project, having a close friend on the committee helped my motivation to be a part of this project. We knew that it would be a lot of work, but we figured it would be more enjoyable knowing that we would be working on this project together" (p. 1). Kaitlyn K. mentioned that working with her friends and peers helped break up the work and made it more approachable. "Working with a team really taught me that research and assessment can be manageable when you have the right people in place and are comfortable with the content you are studying. This project was not only entirely manageable, but the work itself was very enjoyable" (p. 2).

Both elements that we have identified as demystifying the research process are reflected in Sean's response where he talks about the intimidating factors going into this project, working with a professor and peers, and how he now feels more comfortable with the research process.

> "The initial grant-writing process was a new experience altogether for me. There is a great deal of work that goes into obtaining a grant, and I was always intimidated by trying to get one. However, working as a team with a faculty member allowed us to work on specific parts of the grant and then collaborate to pull it all together. I now feel much more confident in my abilities and feel that I would be able to attempt a grant on my own after having this experience to reflect on…" (pp. 3-4).

Future Research

Future research could be conducted to examine the impact of differing undergraduate majors or institutions of the participants and how that affects the attitudes and/or expectations of research at the graduate and professional level.

Another opportunity would be to compare the attitudes about research in graduate students who elected to participate in the out-of-class research project compared with their peers who did not have the out-of-class research experience. Some of the research participants mentioned how their out-of-class experience affected their other graduate coursework; but this study did not examine how, if at all, research opportunities with faculty members impacted interest in conducting future "in-class" research opportunities. More research could be done to see if graduate students who engage in out-of-class research are more likely to elect coursework that includes research projects and/or seek higher level degrees.

Conclusion

Most of the graduate students identified some hesitation in getting involved with an out-of-class research project, yet after analyzing these students' reflections, all of the subjects spoke positively about their experience. Graduate students were able to identify clear ways in which they learned and grew as researchers. The participants gained a new perspective on research after being a part of these out-of-class projects; research was no longer an activity that only experts conducted. These students gained experience and confidence in their research skills in an active way that they were not exposed to in the classroom. This development was possible through the relationships formed between the graduate students and an experienced professor, as well as the relationships the student research teams developed among themselves. SoTL research facilitates improvement of teaching and learning and this experience has allowed graduate students to become peer teachers of assessment and research in their individual offices as well as their field.

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