2021

Learning by Doing: Student Experiences in a Mixed Methods Research Course

Katherine Myers-Coffman PhD, MT-BC

Maliha Ibrahim

Karolina Bryl

Janelle S. Junkin

Joke Bradt

International Journal of Doctoral Studies

An Official Publication of the Informing Science Institute
InformingScience.org

IJDS.org

Volume 16, 2021

LEARNING BY DOING: STUDENT EXPERIENCES IN A MIXED METHODS RESEARCH COURSE

Katherine Myers-Coffman*	Molloy College, Long Island, NY, USA	kmyers-coffman@molloy.edu
Maliha Ibrahim	Sangath, New Delhi, India	maliha.ibrahim89@gmail.com
Karolina Bryl	Drexel University, Philadelphia, PA, USA	klb364@drexel.edu
Janelle S. Junkin	Harrisburg University Philadelphia, PA, USA	jjunkin@harrisburgu.edu
Joke Bradt	Drexel University, Philadelphia, PA, USA	jbradt@drexel.edu

* Corresponding author

ABSTRACT

Aim/Purpose	The purpose of this paper is to detail the experiential learning processes of an 11-week doctoral-level intermediate mixed methods research (MMR) course in which student-researchers conceptualized and implemented an MMR study to apply theoretical and methodological learning in a practical manner. Our aim is to emphasize the value of an applied MMR course for improved student learning and curriculum planning for faculty by highlighting meaningful insights on study design, data integration, team collaboration, and the challenges and opportunities involved in project execution within a time-limited academic course.
Background	MMR courses are increasingly being integrated into graduate programs, yet few offer intermediate or advanced courses that go beyond introductory topics and engage students in applied learning. Furthermore, most articles on MMR courses are written from the instructor perspective and not from the student perspective.
Methodology	This article is organized by each week of the course curriculum, and the output of the research project, couched within reflections of the applied process, is presented. While this paper is grounded in an experiential reflection of learning, the research project itself is referred to frequently to help elucidate and capture

Accepting Editor Norma J. Turner | Received: October 24, 2020 | Revised: January 13, 2021 | Accepted: January 14, 2021.
Cite as: Myers-Coffman, K., Ibrahim, M., Bryl, K., Junkin, J. S., & Bradt, J. (2021). Learning by doing: Student experiences in a mixed methods research course. *International Journal of Doctoral Studies, 16,* 31-46. https://doi.org/10.28945/4683

	this learning in a systematic way. The applied study employed an explanatory sequential mixed methods design to examine career satisfaction and career preference changes over time in doctoral candidates and graduates.
Contribution	This paper contributes to higher education by providing a student-led exemplar of applied learning in MMR pedagogy for doctoral students irrespective of discipline and research topic. It provides a sample research project, executed start to finish with a guiding blueprint that can be adapted by faculty and students in various academic departments, within a quarter or semester long course.
Findings	Ultimately, this course led to increased confidence and preparation to conduct interdisciplinary mixed methods research. Unique to mixed methods research, the areas in which we witnessed the most growth included developing mixed methods research questions, choosing a design based on these questions, and engaging in data integration.
Recommendations for Practitioners	We provide the following recommendations to instructors interested in developing intermediate- or advanced-level MMR courses: a) obtain input from students on what they are most interested in learning during course conceptualization or early on in implementation; b) consider that a great deal of time outside of the classroom may need to be dedicated to the class project, which may impact the feasibility and successful execution of an experiential course; and c) sufficient class time is dedicated to data integration from quantitative and qualitative inputs.
Recommendations for Researchers	Researchers interested in further examining learning and proficiency garnered from MMR and other research courses may benefit from including students as co-researchers. In addition, engaging in systematic qualitative research on student and professor experiences in learning and teaching MMR courses could highlight further areas for course refinement and topics for future research.
Impact on Society	Given the increasing prevalence of MMR being included in research funding announcements as a preferred methodology, it is imperative to rigorously train researchers in mixed methods research at varying levels of advancement (i.e., introductory, intermediate, and advanced).
Future Research	Our small explanatory sequential mixed methods study began as a class project, yet highlighted areas that could be studied further for doctoral candidates and graduates in clinically oriented fields, such as learning what types or qualities of training and mentorship may yield more career preparedness and satisfaction.

Keywords: mixed methods research, applied research, experiential learning, career satisfaction, doctoral education

INTRODUCTION

Mixed methods research (MMR) designs are complex in that they require a strong foundation in both quantitative and qualitative approaches (Creswell & Plano Clark, 2018). Given the increasing prevalence of MMR being included in research funding announcements as a preferred methodology, it is imperative to rigorously train researchers in MMR. While MMR courses are increasingly integrated into graduate programs, rarely do academic curricula offer multiple levels of advancement (i.e., introductory, intermediate, and advanced) to help students go beyond introductory knowledge and prepare them to design and implement MMR projects (Leech & Goodwin, 2008). Many academic courses cover topics such as philosophical worldviews and theoretical understandings of MMR designs, yet more challenging tasks involve providing students with applied learning experiences and the development of methodological literacy (Hesse-Biber, 2015; Poth, 2014). These tasks can include

conceptualizing MMR research questions, choosing an appropriate design to answer those research questions, implementing a research study that expansively integrates both quantitative and qualitative data collected in an integrated manner and, finally, succinctly reporting results. Findings from a study on MMR pedagogy suggest that instructors have varied approaches to teaching their MMR courses in that some focus on conceptual versus applied content (Onwuegbuzie et al., 2011).

In this paper, we present an MMR course designed as an integration of conceptual and applied learning. A course instructor (last author) designed this intermediate level MMR course with direct input from then doctoral students (first four authors) about the structure and applied learning options within the course. This course was collaborative in its approach, ensuring that we (students) engaged in learning grounded in theory and applied learning. We outline in this paper the topics taught each week and also present the findings of our small research study conducted as part of the applied learning experience.

Also in this paper are student reflections of our perspectives and learning in this doctoral MMR course. To date, articles discussing student learning in MMR courses have been through the lens of the professor teaching the course (Ivankova, 2010; Onwuegbuzie et al., 2011; Plowright, 2013; Poth, 2014). Though these articles explore students' learning in MMR courses via self-report surveys, interviews, focus groups, and analysis of course evaluations, to our best knowledge, there are no articles that detail student learning authored by students. We present our voices here to address the gap in literature of student perspectives reported by students. Because of this student-led voice, this paper focuses on our learning experiences and not on the challenges of teaching MMR, which can be reviewed elsewhere (Ivankova, 2010; Onwuegbuzie et al., 2011; Plowright, 2013; Poth, 2014). Our hope is that by detailing our learning experiences, we can emphasize the significance of such an applied course for students, provide examples of conceptual and applied pedagogical structures in an intermediate MMR class, and showcase how a small study conducted in a limited time frame can yield meaningful insights.

CLASSROOM CONTEXT

As students coming to this course, we brought with us our own epistemological, ontological, axiological, and methodological worldviews as researchers. This was the first time an intermediate-level MMR course was offered by our university departments. The course was a learning experience not only for us as students, but also for the faculty in terms of how to best deliver course content and at what point in the doctoral education to offer it. Three students in the course were interested in conducting MMR dissertations and had at least one more year in the doctoral program, while one student had completed qualitative data collection for her dissertation research and was in the data analysis stage; this was her final course in the doctoral career. Given the differences in stages of doctoral work, we negotiated how to best learn from one another and our professor, so that we were able to fully appreciate conducting MMR. We desired to not only learn the concepts of MMR, but to apply them in an actual research context.

As students, we had served as research assistants to our faculty advisors and other professors in the program prior to this course. Thus, we entered the class with experience in conducting literature reviews, designing quantitative and qualitative research studies, and collecting and analyzing qualitative and quantitative data. As well, we brought with us unique disciplinary perspectives in that two students were music therapists, one was a dance/movement therapist, and one was a couple and family therapist. The course instructor has a rich background in MMR pedagogy and teaching experiences. She is well versed in various MMR designs, having collaborated with other experts in MMR research studies and utilized this expertise in several research projects of her own. She was able to guide us on conceptual and methodological levels. Her extensive experience in MMR provided a unique opportunity for the course set up.

The course was employed during an 11-week quarter system, with three hours of weekly in-class time. Each class contained a lecture on a specific MMR topic followed by time to discuss and apply what was learned by conducting a small research study (see Table 1). We, students, divided up responsibilities for the assigned tasks each week; we reflect throughout the paper on our experiential learning and personal growth as budding researchers. Our study was limited by the 11-week time frame, yet we felt that the knowledge garnered on MMR processes was invaluable.

Table 1. Outline of topics and resulting products per course week

Week	Topic	Resulting Product
1	Choosing a topic, reviewing literature; discussing research gaps	Research topic (career satisfaction and preferences in career changes over time in graduate students); annotated bibliography; literature review section; research gaps
2	Developing research questions; choosing MMR design	Quantitative, qualitative, and mixed methods research questions; decision to use explanatory sequential MMR design
3-4	Survey development; quantitative data collection and analysis	Survey questionnaire; survey results (n = 8); Qualtrics report of descriptive statistics
5-6	Interview protocol development; qualitative data collection and analysis	Interview guide; qualitative interview transcripts (n = 4); qualitative codes and themes
7-10	Data integration; creating a joint display	Joint display
11	Dissemination	In-class PowerPoint presentation to course instructor; submission of poster presentation to interdisciplinary conference at our university

WEEK 1: CHOOSING A TOPIC, REVIEWING THE LITERATURE, AND IDENTIFYING RESEARCH GAPS

Our first task was to consider a topic that was meaningful to study as well as feasible to explore within our limited 11-week time frame. As doctoral students, we were interested in learning about career satisfaction of recent graduates from the two programs represented in our class: Creative Arts Therapies (CAT) and Couple and Family Therapy (CFT). We had one week to choose a research topic, review literature on that topic, and identify research gaps. From our research assistantships and previous class learning, we were well-acquainted with the literature review process. We divided the work and critically appraised the articles individually. Everyone worked on and reviewed this matrix in between the first- and second-class meetings, and we discussed via email and in our second class, gaps in the literature to help develop our research questions.

Our literature review yielded several trends in higher education that impact doctoral satisfaction over the course of doctoral study and post-graduation, including preparation received for research careers, assistantships or fellowships, hands-on experience, advisor mentorship and scholar's personal values. One trend highlighted how faculty in doctoral programs typically prepare students for research careers, yet research shows that while students might initially prefer these positions, this inclination decreased over the course of the doctoral training (Fuhrmann et al., 2011; Gibbs et al., 2014; Sauermann & Roach, 2012). Whether or not doctoral students were offered assistantships or fellowships during their training seemed to influence career preparedness and, ultimately, their career satisfaction.

Heyer and colleagues (2012) found higher rates of career satisfaction among the students awarded university assistantships due to availability of resources and opportunities from assistantships not available to self-funded candidates. Additionally, Miller and Lambert-Shute (2009) found that students felt more prepared in their careers when provided hands-on experience with teaching, grant writing, and advisor supervision in career planning over the course of the PhD program. Lastly, changes in personal values or experiences during doctoral training also appeared to impact career satisfaction as well as career preference changes (Gibbs & Griffin, 2013; McAlpine, 2012). Ultimately, we found that many studies on career satisfaction were quantitative and covered life sciences and STEM disciplines (Fuhrmann et al., 2011; Gibbs et al., 2014; Sauermann & Roach, 2012). Therefore, we wanted to expand the limited understanding of the ways career preparedness and changes in career preferences over time, impacted graduates' career satisfaction from clinically oriented disciplines.

WEEK 2: DEVELOPING RESEARCH QUESTIONS AND CHOOSING AN MMR DESIGN

Methodologically, we learned in week two about the importance of developing not only quantitative and qualitative research questions prompted by our identified research gaps, but also MMR questions. MMR questions integrate both quantitative and qualitative modes of inquiry, a critical component in MMR (Curry & Nunez-Smith, 2014). Individually, we had experiences developing quantitative and qualitative research questions for previous studies, however, conceptualizing an integrated MMR question was a new experience and helped solidify our understanding of how MMR truly is a distinct paradigm of research (Creswell & Plano Clark, 2018). We learned to be thorough and intentional about the questions asked to set the stage for the rest of the MMR project. We worked to make sure our integrated questions could not be answered through quantitative or qualitative research alone, but only by integrating both data sets.

We determined that the purpose of our MMR study was to a) identify perceived levels of career satisfaction and b) understand what factors influence career preferences and satisfaction in recent doctoral graduates in CAT and CFT programs. Due to our restricted study time frame, we found it most practical to use purposive sampling through the programs at our university. Because these programs were relatively new and there were not many graduates yet, we decided to expand our population to include doctoral graduates and PhD candidates. For those candidates still pursuing their degrees, we wanted to understand changes in career preferences over the course of doctoral studies and factors influencing those changes. IRB approval did not need to be sought because this was a class project. However, upon project completion, we desired to publish our experiences and include some of the data to illustrate our points. Therefore, we sought and obtained post-hoc IRB approval at our university.

Our study aims and research questions were influenced by Sauermann and Roach's (2012) study on career preference patterns in PhD students in life sciences and STEM fields. "Quan" denotes a research question to be answered through Quantitative methods, "Qual" through Qualitative methods, and "Mixed" through an integration of the data from the Quan and Qual approaches.

Aim 1: (Graduates only): To understand how recent doctoral graduates from CAT and CFT programs perceive their current career satisfaction.

> RQ1: How satisfied are doctoral graduates with their current career choice and which factors particularly influence that level of satisfaction? (Quan)
>
> RQ2: How do participants define and perceive their career satisfaction? (Qual)
>
> RQ3: How do the qualitative data enhance our understanding of the quantitative data? (Mixed)

Aim 2: (Graduates and PhD candidates): To understand changes in career preferences over the course of doctoral studies in PhD candidates and recent graduates from CAT and CFT programs.

> RQ1: To what extent, if any, did career preferences change over the course of the doctoral program? (Quan)
>
> RQ2: What were underlying drives of this change? (Qual)
>
> RQ3: How does understanding the underlying drives help explain the extent to which career preferences changed over the course of the doctoral program? (Mixed)

Once we determined our research questions, we reviewed MMR designs and explored which design might help us best answer our research questions. We debated whether a convergent design or an explanatory sequential design would be best. In a convergent design, quantitative and qualitative data are collected simultaneously and analyzed separately before integration (Creswell & Plano Clark, 2018). In an explanatory sequential design, quantitative data are collected and analyzed first, with qualitative data being collected and analyzed second in order to explain the quantitative findings (Creswell & Plano Clark, 2018). Data integration in an explanatory sequential design occurs in two places: at the point when the quantitative analysis ends and the qualitative analysis begins and at the end of the study after both sets of data have been collected and analyzed (Plano Clark & Ivankova, 2016).

We decided to use an explanatory sequential design as we envisioned the use of a questionnaire to collect our quantitative data and then created a qualitative interview guide informed by the quantitative results. We recognized that this design would be challenging given our 11-week timeframe. However, with input from our course instructor, we designed a plan for data collection and analysis that could feasibly be conducted within our time constraints while still maintaining methodological rigor.

WEEK 3: DEVELOPING RESEARCH QUESTIONS AND CHOOSING AN MMR DESIGN

In addition to outlining our quantitative data collection procedures, this section addresses the first research questions of our first and second study aims by a) describing levels of satisfaction in graduated doctorates, b) considering the factors that influence their career satisfaction, and c) examining the extent of change in their career preferences during the doctoral program.

To begin, we created our own survey instrument guided by relevant literature in the field (Sauermann & Roach, 2012). Some of the research team members had quantitative research experience, yet only two had worked on survey studies. Survey development provided an opportunity to explore the phrasing of different questions to address our study aims and learn how to set up an online survey using various question formats and survey logic.

One main challenge in developing the survey included how to best manage time constraints and communicate as a team outside of class. Creating quality survey questions took much longer than anticipated, and a great deal of time was spent outside of class working on this portion of the project. Being full-time students with commitments to other courses, research fellowships, and dissertation research, it was necessary to be honest and transparent about time restrictions to allow for problem solving and development of the survey within the given timeframe. Informed by the literature search, in-class discussions, and feedback from the course instructor, the survey ultimately included demographic questions, information about doctoral degree status, influential forces within and outside the doctoral program, financial assistance, mentorship, future career preferences, and evaluation of present career (for graduates).

The survey included questions that primarily had discrete choice options, in which participants selected one or more options. Some questions were based on a 1-5 Likert-type scale, which calibrated responses for job attractiveness towards multiple positions and attraction to PhD program ("most

attractive" – "least attractive"); the value of research/teaching assistantships ("extremely helpful" – "not helpful"; "satisfied" – "not at all satisfied"); department encouragement ("highly encouraged" – "strongly discouraged"); and career satisfaction ("extremely satisfied" – "extremely dissatisfied"). There was also one question that asked participants to list their top three career choices. We organized all survey questions in Qualtrics and would use the descriptive statistics capabilities in Qualtrics to analyze the data.

Eligibility criteria for participants included a) graduates from the University's CAT and CFT doctoral programs or b) students in the University's CAT and CFT doctoral programs who had passed their candidacy examination. We reached out to CAT and CFT program directors to identify eligible participants via a process of convenience sampling, an offshoot of purposive sampling (Plowright, 2013). Fifteen eligible PhD candidates and doctoral graduates were sent a recruitment email with a link to participate in the quantitative survey. An invitation to engage in a qualitative interview was included at the end of the survey.

Eight female-identified participants completed the survey in its entirety: four from the CAT department (two graduates and two candidates) and four from the CFT department (two graduates and two candidates). Five of the participants identified as Caucasian, one as African American, and two preferred not to answer. Four of the participants were in their 20s, two in their 30s, and two 40 years or older. All participants provided informed consent for participation.

Survey results of the PhD graduates (n = 4) indicated that three participants were extremely satisfied with their current careers while one participant was neither satisfied nor dissatisfied. Participants identified income, field/discipline of work, job preparedness, and working with a population of one's choice as factors that influenced greater satisfaction. Elements that contributed to dissatisfaction were exhaustion/burnout, workload, job demands, and expectations as well as lack of support for career expenses. Three of the four graduates indicated that they were working in a position consistent with their training and that this position was in line with their long-term career goals.

To better understand potential influences in career preference changes over time, all participants (n = 8) were asked to rate responses on a 5-point Likert scale ("strongly encouraged" – "strongly discouraged") to questions about career preferences at the time participants achieved candidacy and then at the time of the survey. At the time of candidacy, academic faculty positions with a teaching emphasis or a research emphasis were the top two rated career preferences. At the time of the survey, research careers and clinical practice careers were the top rated. Participants were also asked which career areas were most emphasized by their programs. All participants reported that clinical and management/administration were the least encouraged career choices and academic positions with an emphasis on teaching or research were the most encouraged career choices.

Reflecting on the quantitative arm, we were satisfied in our ability to develop and implement a survey within a two-week period. We had a limited sampling pool (n =15), which prohibited us from gathering statistically powerful data. However, we had a high survey response rate (53%). The quantitative findings sparked questions that informed the qualitative arm of the study. For example, the survey responses highlighted differences in career preferences from those at the time of candidacy than at the time of the survey, which varied depending on whether the participant was a graduate or PhD candidate. What contributed to these changes? This was something we could inquire about during our qualitative arm, and it provided a real-life learning example of how data integration occurs between arms in a sequential explanatory MMR design – we needed to first know the results of the quantitative data to learn what to explore more specifically in the qualitative data (Plano Clark & Ivankova, 2016).

WEEKS 5-6: INTERVIEW PROTOCOL DEVELOPMENT AND QUALITATIVE DATA COLLECTION AND ANALYSIS

As per the second research question listed in study aims one and two, the purpose of the qualitative data collection was to further understand how participants perceived career satisfaction and the underlying drives of changes in career preferences during their doctoral education. Therefore, the next aspect of the applied learning was to develop a qualitative interview guide. Before doing so, however, we took a moment to discuss our self-locations in relation to the research topic. All of us were guided by a constructivist lens, with some of us further informed by critical and social theories. As we mentioned earlier, we decided to embark on this topic because it was specifically of interest given that we were PhD candidates ourselves and considering the job market post-graduation. The survey questions we developed allowed for some sort of objectivity given discrete responses. However, we acknowledged that our personal biases, assumptions, and beliefs could impact the questions we asked in the interview, the probes we would use to draw out detailed responses, our possible reactions to responses given by participants, and our qualitative analysis. Therefore, we took time to reflect on this as a group to practice reflexivity prior to developing a semi-structured interview protocol informed by the survey results and literature on important variables of graduate student career satisfaction. Navigating our theoretical positioning together enabled us to comprehend how to work collaboratively in a research team setting and to see the richness of a multifaceted research process.

All survey participants were invited to provide their email address if interested in participating in a qualitative interview. Of the eight survey respondents, four agreed to a follow up interview: two graduates and two candidates from both CAT and CFT departments. Each class member interviewed one participant so that everybody had a chance to gain experience in qualitative interviewing; interviews lasted up to an hour and were audio-recorded. Each team member transcribed their interview verbatim, making sure to de-identify transcripts. We reviewed one another's transcripts and learned how we had different interviewing styles; this enabled us to identify strengths and areas for growth in our qualitative interview skills. While we all had previously worked on qualitative studies, this applied experience gave us another opportunity to strengthen our skills and gain constructive feedback through a team approach. Upon discussion and with input from our course instructor, we determined that the most appropriate app` roach to the qualitative data analysis was to use inductive thematic analysis to determine themes and patterns in the textual data (Braun & Clarke, 2006).

We imported interview transcripts into MAXQDA 12, and each team member conducted line-by-line coding of the transcripts to enhance trustworthiness (Polit & Beck, 2017). We completed our initial coding outside of class time and then used in-class time to discuss our findings, share our coding experiences, discuss discrepancies in coding, and establish a consensus on theme names and descriptions. Given the large amount of time needed to complete the coding portion of our project, the course instructor adjusted lecture schedules to provide more in-class time to discuss our coding and reach consensus.

Next, we engaged in member-checking by sending our thematic findings to the participants to ask if the themes accurately reflected their experiences (Creswell & Poth, 2018). The participants confirmed that the thematic findings captured their experiences and two participants provided further clarification, which we incorporated in the narrative results. The three emergent themes represent the career satisfaction and career preference changes over time in PhD candidates and graduates: "Elements Contributing to Career Satisfaction"; "Drives and Influences Underlying Career Preferences"; and "The PhD Journey". These themes, their subthemes, and example quotes are presented in Table 2. To protect participants' anonymity in this small sample size, example quotes are not individually identified by an interview number. However, we aimed to present themes that were representative of group experiences and not just individual experiences. Even though our sample was small, we offer a brief description here of the themes as we believe the findings are of potential interest to doctoral research education.

Table 2. Qualitative Findings

Theme name and operational definition	Subthemes	Example quotations
Elements Contributing to Career Satisfaction (n = 2): identifying barriers to and facilitators of career satisfaction	*Barriers to career satisfaction* – workload, difficulty of work, uncertainty of the future	- "…we just got done doing an intervention study…it's been a very difficult, long, process and there's been a lot of stressors associated with that." - "… some burn out in general just because of the nature of the population and the research and the rigor." - "Right now, I feel like I am not sure what my career will be, and so right now I feel very uncertain."
	Facilitators of career satisfaction – confidence in training, networking, teamwork	- "It [postdoctoral fellowship] is a great training experience" - "I feel like I got a pretty good research background and support with going in … networking and connections" - "… we got to function as a team"
Drives and Influences Underlying Changes in Career Preferences (n = 4): underlying motivations that contributed to graduates' and post-candidacy students' ability to persevere in the program.	*Faculty support and mentorship*	- "the program helped me be able to think more systemically and relationally, instead of on an individual level basis" - "They tried to work with me on my difficulties but also helped me consider post docs and academic teaching positions, so that was useful."
	University assistantships – offering financial and experiential support	- "The assistantships really provided me opportunities to develop as a thinker, develop as a teacher, develop as a researcher on the path that I was going." - "I would not have been able to come here if it wasn't for the financial support, just living expenses, and devoting the time I needed to my training and research and doing the kind of dissertation project that I did."
	Perceived career preparedness	- "I just started understanding some of the nuances to the careers I wanted to pursue and really question if I was ready for that or would I be prepared enough for it." - "if I wasn't working here, the integration into this center, attending the staff meetings, attending one on one meetings with my advisor, being part of the everyday clinical activities, being part of the research activities… the exposure of it was what prepared me the most."

Theme name and operational definition	Subthemes	Example quotations
The PhD Journey (n = 4): areas of growth and evolution due to moving through a doctoral program	*Personal and professional identity development*	- "I definitely had moments where I just didn't know if I could handle it because my knowledge opened up." - It [PhD education] was a hard process (laughs) to get through, and not always easy… and emotionally difficult. But it has completely made me grow as a person, has made me confront things that I probably wouldn't have confronted before.
	PhD experiences leading to re-envisioned career goals	- "I decided to change my mind that maybe I would rather do more clinical work and I just didn't picture myself doing research anymore." - "At this point, I'm back where I started, just with more knowledge about it, where I still want to teach and I still want to do research, I probably just have a different view of it."
	Support of others	- "I take my views in from the experience of past graduates who have been very successful but also very helpful. I draw inspiration from them." - "I feel supported by my cohort and those above or below me. I feel supported and hopeful sometimes."

Elements Contributing to Career Satisfaction

This theme encompassed barriers to and facilitators of career satisfaction in graduates (n = 2). Barriers related to the participants' current workload, the level of difficulty in their work, and their uncertainty about the future. Facilitators of career satisfaction included opportunities for networking, teamwork, and confidence from their doctoral training. One participant shared: "For me satisfaction definitely involves some good connection with the people, colleagues, students, clients, whatever it is, but definitely some good connections. Yeah, and being fairly compensated."

Sometimes the barriers and facilitators were related to one another. One graduate described her work as both satisfying and dissatisfying, indicating that satisfaction was not fixed but rather "waxes and wanes" according to the situation:

"Even though we do function as a team, it kind of waxes and wanes and I would say, in future I would really want a solid, secure team to be able to manage the level of stress and challenges. I would say that this would contribute to my satisfaction."

Drives and Influences Underlying Career Preferences

This theme touched on the underlying elements that contributed to graduates' and PhD candidates' (n = 4) changes in career preferences during their doctoral program. Faculty support and mentorship, financial support and applied experiences garnered from university assistantships, and perceived career preparedness impacted career preference changes over time. Participants detailed the importance of faculty mentoring and their ability to trust faculty even when they, as students, felt uncertain in the program. One participant shared:

> "I remember just being in it and not knowing about the developmental piece or what were the aims for our professors doing what they did, always thinking in the back of my mind 'There has to be a method to their madness' [laughs] because 'I'm dying here and what is happening?"

All of the participants were recipients of graduate assistantships, which included teaching and research assistantships. The faculty mentorship coupled with experience from assistantships impacted how well prepared participants felt for their careers. One participant shared that "being part of the everyday clinical activities, the research activities, just the exposure of it was what prepared me the most. I'm an experiential learner. I have to be in there doing it, and so that's what helped me." The mentorship, experiential learning and financial support from assistantships, and level of preparedness post the doctoral program highlighted in participants the skills and support they needed to succeed in their preferred career paths.

The PhD Journey

This theme highlighted self-growth, development of personal and professional identity, and the imagining and re-imagining of career goals in graduates and PhD candidates (n = 4). The participants' understanding of themselves as researchers, clinicians, and teachers evolved as they completed their doctoral studies. They stated that they began their doctoral studies with ideas for their futures, and the ideas morphed into new ideas as they were exposed to new ways of thinking, areas of research, and career possibilities. Participants appreciated opportunities to engage in applied learning through assistantships and contributing to professors' publications. These opportunities allowed students to determine their own professional journeys, explore options, and consider new possible career goals. For example, one participant who shared her initial goal upon entering the PhD program as "I really thought that I would go into research and be a researcher," went on to explain that her doctoral education experiences led her to "want to do clinical work, be an administrator and be a director of an organization."

The participants also expressed a deeply personal transformation regarding how they viewed themselves and their learning, reflecting that their experiences throughout the PhD program contributed to their identity as professionals – "…you're always reevaluating who you are, what your skills are, the potential that you have." They shared that they valued both the difficult and smooth learning experiences. Furthermore, external support by friends, family, fellow students, and graduates of their programs played a role in this personal and professional development. Peer support often exposed them to new ideas and understandings, which were incorporated into their individual experiences, impacting their personal identity development. The PhD journey was reportedly full of positives and negatives, moments of doubt and elation, confusion and clarity. Yet, in persevering and re-imagining themselves and their careers, with the support of others through this process, all the participants had satisfying moments and experiences.

Weeks 7-10: Integrating Data

After completing the qualitative phase, we integrated both datasets to answer our MMR research questions about how the qualitative data enhanced the quantitative data on career satisfaction and driving factors in career preferences. This was the newest process to us as we had never before employed the intentional integration of quantitative and qualitative data, and it was quite challenging. We were both learning about data integration and implementing that learning simultaneously. Though our professor was present and willing to provide learning support, it was daunting to engage in this task of the research. We spent time talking through the data integration findings, eventually writing it on a white board and creating connections, visually. We decided to follow Creswell and Plano Clark's (2018) suggestion of creating a joint display, which is used in MMR to visually represent research findings in an integrated manner. We had to think critically about what was most important to include given that we would have limited space to present the information (i.e., a PowerPoint slide or single page image). Three of our team members were creative arts therapists. Therefore, we wanted to employ our artistic skills and inquiry processes so that a visual joint display creatively presented our findings through an aesthetic interpretation. This process ultimately took us three weeks to complete.

Our creative approach to designing the joint display involved many methods of inquiry. We engaged in concept mapping and drawing and sought images that evoked feeling and meaning when combined spatially with the visual data displays. For example, we envisioned "The PhD Journey" theme as a directed movement, such as the image of a person walking, and that the "Drives and Influences Underlying Career Preferences" theme and relating survey findings as interspersed around that walking image to indicate progression, evolution, and movement. As we continued to engage in these creative processes, we made sure to revisit our research questions regularly to ensure we were maintaining clarity in the representation of study findings.

Our final joint display (Figure 1) identifies the drives and influences that contributed to career preference changes over the course of the PhD program. The display also illustrates the PhD journey as perceived by participants, which includes personal and professional identity development, re-envisioned career goals and support from others. We aimed to pair the quantitative results with the qualitative themes that helped explain them. The joint display served as a metaphorical representation of the journey to career satisfaction throughout the doctoral program to post-graduation. The woman figure represents the study participants who all identified as female, and the arrow represents movement, highlighting the fact that satisfaction is active and shifting.

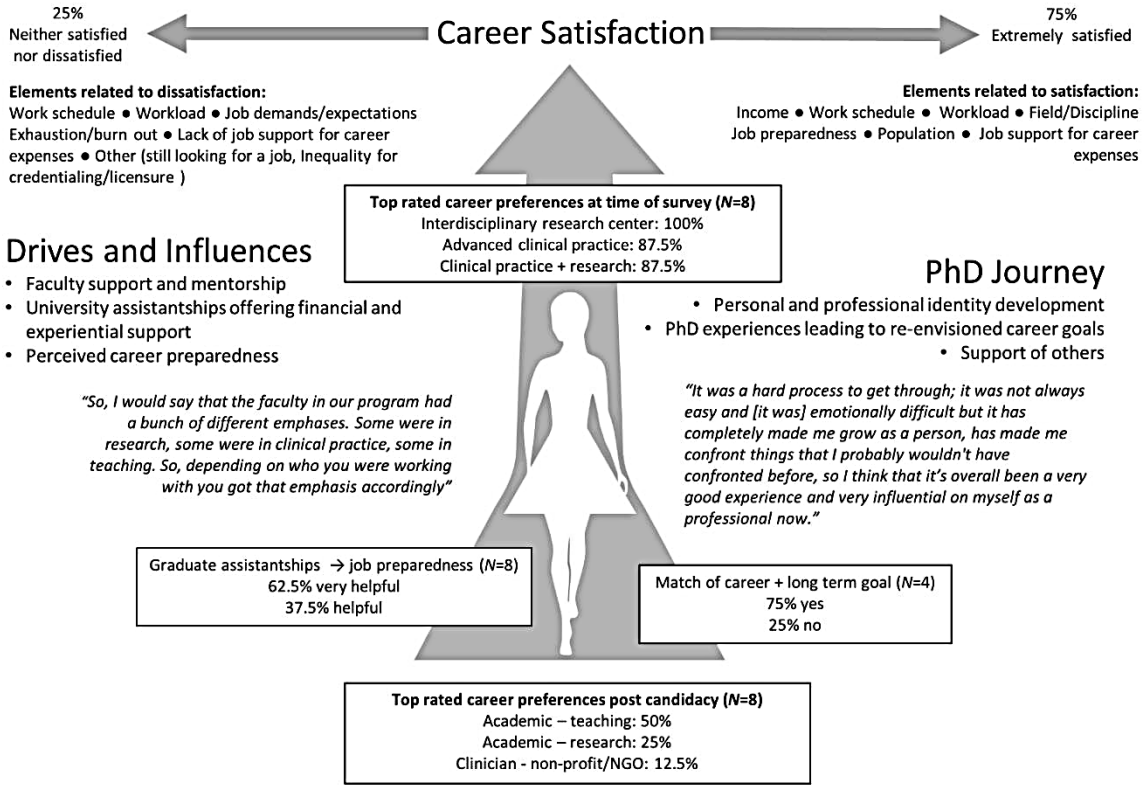

Figure 1. Joint Display Table: Integrated Quantitative and Qualitative Findings

Integrating the data through a joint display enhanced our understanding of the important aspects contributing to participants' career choices post-graduation. For example, while survey results indicated that 62.5% of participants found job preparedness helpful in making career choices, qualitative interviews clarified positive influences that included scholarly activities and faculty support. The participant interviews gave examples of things that contributed to preparedness: "Getting a specific type of training and mentorship" and "The research assistant, the teaching assistant positions, those really helped me". Seeing these quantitative and qualitative findings together highlighted areas that could be

studied further, such as learning what types or qualities of training and mentorship may yield more career preparedness.

Another example of how data integration enhanced understanding of quantitative results was in the area of how career preference changes over time. The survey asked participants about top-rated career preferences at the time they achieved candidacy as well as their top-rated preferences at the time of the survey. Participants in the CFT and CAT programs reported academic teaching and research as top preferences at candidacy, yet also identified clinical positions as preferences at the time of the survey. Through the participant interviews, we learned that applied learning from the research assistantships helped convince them that career opportunities with combined clinical and research activities were preferred and became prioritized career options for participants.

WEEK 11: DISSEMINATION MIXED METHODS RESEARCH RESULTS

The culmination of our project involved presenting our findings to our course instructor and subsequently submitting a poster presentation of our study for an interdisciplinary conference at our university. In both presentations, it was necessary to acknowledge the study limitations, such as time restraints impacting our ability to recruit a larger sample. We worked to emphasize our processes in the applied learning experience and share the study content as examples of our process.

Our biggest challenge in disseminating our findings and experience was space and time. Our class presentation, which was given by PowerPoint, was time limited, and we needed to showcase the quantitative, qualitative, and integrated research findings as well as reflections on our experiences designing, implementing, and analyzing this research. Similarly, a poster presentation had limited space and it was challenging to fit in essential items of a singular quantitative or qualitative study, let alone an MMR study incorporating multiple data sets. Even preparing this paper was challenging as we desired to emphasize our learning process while still clearly explaining our research study. Therefore, it has been an incredible experience for us to negotiate what is included so that information is clearly conveyed, and what is removed to meet the various constraints of the various dissemination platforms.

CONCLUSIONS

In this article, we detailed applied learning experiences in a doctoral-level, intermediate MMR course. The intent of the article was to provide evidence of the value of experiential learning when conducting a research study as part of an academic research course. Over the course of 11 weeks, we identified a topic and knowledge gap, developed a set of research questions, conceptualized a study design to answer these questions, designed and implemented a quantitative survey tool and semi-structured interview guide, completed quantitative, qualitative, and integrated data analyses including designing a joint display, and disseminated our findings through an in-class presentation and poster presentation at a university conference. Through this applied learning experience, we gained skills in conducting interdisciplinary team research and MMR.

This paper contributes to higher education by providing a student-led exemplar of applied learning in MMR pedagogy for doctoral students irrespective of discipline and research topic. It provides a sample research project, executed start to finish with a guiding blueprint that can be adapted by faculty and students in various academic departments, within a quarter or semester long course.

We acknowledge that, as students, we dedicated a great deal of time outside of the classroom to complete our project. Because we gave input as the instructor designed the class, we were aware of the heavy workload. However, we would like to point out that this heavy workload might not be a feasible expectation for all, depending on credit loads or how many students are in a class to be able to help work on the project.

Pedagogically, our biggest learning challenge was understanding data integration in MMR. This took us the longest to explore and understand as it is such a unique component to MMR that does not exist when conducting quantitative or qualitative studies alone. We recommend ensuring sufficient class time be dedicated to data integration as even students well versed in quantitative and qualitative methods may need sufficient time to explore and understand this critical aspect of MMR.

Researchers interested in further examining learning and proficiency garnered from MMR courses may benefit from including students as co-researchers. As previously mentioned, most articles that present student learning experiences in MMR courses have been provided through the lens of the course instructor, and including students as co-researchers, who are the stakeholders in their learning and education, could provide a more in-depth understanding. In addition, engaging in systematic qualitative research on student and professor experiences in learning and teaching MMR courses could highlight further areas for course refinement.

With regards to the topic of our class research project, our small explanatory sequential mixed methods study highlighted areas that could be studied further for doctoral candidates and graduates in clinically oriented fields, such as learning what types or qualities of training and mentorship may yield more career preparedness and satisfaction.

While in this paper we shared many of our reflections within each phase of the class project, we would like to share one further reflection on this applied class learning process as a whole. We learned that the challenges and strengths of working as part of an interdisciplinary team can include a) clear and open communication of ideas, b) delineation of roles, c) an ebb and flow of leadership, and d) the need and know-how to work remotely through technology. At the time of the project, each of us had been research assistants, working on studies at our university and having tasks assigned to us by a principal investigator. In this study, we conceptualized and designed all aspects of an MMR study with the guidance of our course instructor and navigated how to implement it on our own. The course helped us feel more prepared to conduct interdisciplinary research and MMR. We found this invaluable and it influenced our decision to disseminate this project through the writing of this article. We hope that sharing our learning experiences highlights aspects of MMR pedagogy and learning that may be valuable to other student researchers and faculty aiming to design application-based course assignments.

REFERENCES

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). Sage Publications.

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Sage Publications.

Curry, L., & Nunez-Smith, M. (2014). *Mixed methods in health sciences research: A practical primer*. Sage.

Fuhrmann, C. N., Halme, D. G., O'Sullivan, P. S., & Lindstaedt, B. (2011). Improving graduate education to support a branching career pipeline: Recommendations based on a survey of doctoral students in the basic biomedical sciences. *CBE-Life Sciences Education, 10*(3), 239-249. https://doi.org/10.1187/cbe.11-02-0013

Gibbs, K. D., Jr., & Griffin, K. A. (2013). What do I want to be with my PhD? The roles of personal values and structural dynamics in shaping the career interests of recent biomedical science PhD graduates. *CBE-Life Sciences Education, 12*(4), 711-723. https://doi.org/10.1187/cbe.13-02-0021

Gibbs, K. D., Jr., McGready, J., Bennett, J. C., & Griffin, K. (2014). Biomedical science Ph. D. career interest patterns by race/ethnicity and gender. *PloS One, 9*(12), e114736. https://doi.org/10.1371/journal.pone.0114736

Hesse-Biber, S. (2015). The problems and prospects in the teaching of mixed methods research. *International Journal of Social Research Methodology, 18*(5), 463-477. https://doi.org/10.1080/13645579.2015.1062622

Heyer, A., Kuli, S., Vis, R., & Waaijer, C. (2012). *Job satisfaction among PhD candidates at Leiden University and the Leiden University Medical Centre.* Report LEO survey 2012. https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=2746873

Ivankova, N. V. (2010). Teaching and learning mixed methods research in computer-mediated environment: Educational gains and challenges. *International Journal of Multiple Research Approaches: Using Video in Social Science and Health Research, 4*(1), 49-65. https://doi.org/10.5172/mra.2010.4.1.049

Leech, N. L., & Goodwin, L. D. (2008). Building a methodological foundation: Doctoral-level methods courses in colleges of education. *Research in the Schools, 15*(1), 1-8.

McAlpine, L. (2012). Identity-trajectories: Doctoral journeys from past to present to future. *The Australian Universities' Review, 54*(1), 38-46. https://files.eric.ed.gov/fulltext/EJ968518.pdf

Miller, J. K., & Lambert-Shute, J. (2009). Career aspirations and perceived level of preparedness among marriage and family therapy doctoral students. *Journal of Marital and Family Therapy, 35*(4), 466-480. https://doi.org/10.1111/j.1752-0606.2009.00150.x

Onwuegbuzie, A. J., Frels, R. K., Leech, N. L., & Collins, K. M. (2011). A mixed research study of pedagogical approaches and student learning in doctoral-level mixed research courses. *International Journal of Multiple Research Approaches, 5*(2), 169-199. https://doi.org/10.5172/mra.2011.5.2.169

Polit, D. F., & Beck, C. T. (2017). *Essentials of nursing research: Appraising evidence for nursing practice* (9th ed.). Lippincott Williams & Wilkins.

Plano Clark, V. L., & Ivankova, N. V. (2016). *Mixed methods research: A guide to the field.* Sage Publications.

Plowright, D. (2013). To what extent do postgraduate students understand the principles of mixed methods in educational research? *International Journal of Multiple Research Approaches, 7*(1), 2444-2492. https://doi.org/10.5172/mra.2013.7.1.66

Poth, C. (2014). What constitutes effective learning experiences in a mixed methods research course? An examination from the student perspective. *International Journal of Multiple Research Approaches, 81*(1), 74-86. https://doi.org/10.5172/mra.2014.8.1.74

Sauermann, H., & Roach, M. (2012). Science PhD career preferences: Levels, changes, and advisor encouragement. *PloS One, 7*(5), e36307. https://doi.org/10.1371/journal.pone.0036307

AUTHORS

Dr. Katherine Myers-Coffman, PhD, MT-BC is an Assistant Professor of Music Therapy at Molloy College in Long Island, NY, and a board-certified music therapist whose clinical work and research center on developing and evaluating resilience-focused music therapy programs for youth who have experienced trauma and loss. Her scholarship also promotes rigor and innovation in music therapy research methodology as well as trauma-informed, culturally reflexive approaches to clinical practice.

Dr. Maliha Ibrahim is a Mental Health Researcher and Psychotherapist. In the past decade, she has managed several young researcher grants pertaining to youth and family mental health as well as published numerous peer-reviewed articles on mental health programs for youth and women. She possesses over 5000 hours of clinical experience as a Marriage and Family Therapist (MFT) and is a supervisor in training (AAMFT). She specializes in attachment relationships between youth and their caregivers especially for racially or economically marginalized families, LGBTQIA+ related MH and identity formation, trauma-focused care, mitigating depression/self-harm tendencies, substance use and harm reduction.

Dr. Karolina Bryl, PhD, R-DMT/DMP, CMA, RMST/E, is a Post-Doctoral Research Fellow in the Department of Creative Arts Therapies at Drexel University and a dance/movement psychotherapist. She has led psychotherapy and somatic therapies sessions in the psychiatric settings and in private practice, specializing in adult mental health. Her research is focused on dance/movement therapy effectiveness in adults with mental illness, and nonverbal behavior and the body's relevance to psychic processes.

Dr. Janelle Junkin, PhD, MT-BC, is a board-certified music therapist, independent researcher, and consultant. She has developed equity-based Monitoring and Evaluation systems domestically and internationally. She is a corporate faculty at Harrisburg University of Science and Technology, Philadelphia campus. She is the founder of Orchestral Dialogues: Musicking with Community. Her research focuses on youth identity development, the role of the arts in conflict transformation, and understanding the community arts and creative arts therapies as vehicles that provide hope and healing to people and communities in crisis.

Dr. Joke Bradt, PhD, MT-BC is Professor and Program Director of the PhD in Creative Arts Therapies program at Drexel University and a board-certified music therapist. Her federally funded research is focused on the use of music therapy for chronic pain and symptom management. She is Editor-in-Chief of the *Nordic Journal of Music Therapy*.