

Challenges to Teaching Mixed Research Courses

Rebecca K. Frels^{1a}, Anthony J. Onwuegbuzie^b,
Nancy L. Leech^c, and Kathleen M. T. Collins^d

^a*Lamar University, Beaumont, Texas 77710*

^b*Sam Houston State University, Huntsville, Texas 77341*

^c*University of Colorado Denver, Denver, Colorado 80217*

^d*University of Arkansas at Fayetteville, Fayetteville, Arkansas 72701*

Abstract

Across the United States, many faculty members are developing new mixed research courses. However, before embarking on teaching these courses, it would be helpful for instructors to be aware of the challenges faced by instructors and students in mixed research courses. Thus, the purpose of this qualitative-dominant mixed research study was to document these challenges. Participants were 11 instructors of mixed research courses from institutions around the United States who were selected purposively via critical case sampling such that they represented a diverse set of instructors. The following four themes emerged that represented dimensions of challenges: Time, Diversity, Format/Life Situations, and Preconceived Bias. Three of these themes yielded 10 subthemes. Moreover, a correspondence analysis of the four themes revealed that they each fell somewhere on a continuum that lay from internal influences that characterized an interaction between instructors and students (i.e., Diversity, Format/Life Situations) to external influences that characterized an interaction between instructors and curricula pertaining to the rapidly evolving field of mixed research—yielding the meta-themes of Internal Influence and External Influence. Implications for instructors and students undertaking mixed research courses are discussed.

Keywords: Mixed research; mixed methods research; mixed research courses; mixed research pedagogy; pedagogical challenges.

The overwhelming majority of doctoral students representing the social and behavioral sciences are required or expected to complete at least one research methodology course as part of their degree programs (Capraro & Thompson, 2008; Leech & Goodwin, 2008), and although these research methodology courses tend to represent either quantitative research courses or qualitative research courses, in recent years, an increasing number of students are being exposed to mixed research courses—wherein quantitative and qualitative research approaches are taught within the same course. For example, Leech and Goodwin (2008), who surveyed 100 schools of education across the United States, docu-

¹ Corresponding author's email: rebecca.frels@gmail.com

mented that 22% of programs required students take a mixed research course and 20% of programs offered mixed research as an elective. And, bearing in mind that the data for this study were collected more than 4 years ago, it is very likely that the number of mixed research courses being taught worldwide has increased significantly, especially considering the increased visibility of this third methodological movement through such venues as journals devoted to mixed research (i.e., *Journal of Mixed Methods Research*; *International Journal of Multiple Research Approaches*), conferences devoted to mixed research (for example see <http://www.healthcareconferences.leeds.ac.uk/conferences/>), handbooks (i.e., Tashakkori & Teddlie, 2010), books (e.g., Bergman, 2008; Collins, Onwuegbuzie, & Jiao, 2010; Creswell & Plano Clark, 2010; Greene, 2007; Hesse-Biber, 2010; Johnson & Christensen, 2010; Morse & Niehaus, 2009), and mixed research articles published in high-impact journals (e.g., Johnson & Onwuegbuzie, 2004).

As surmised by Creswell, Tashakkori, Jensen, and Shapley (2003), “very few courses are currently available specifically on mixed methods research” (p. 620). Indeed, most of the existing mixed research courses have emerged in the last 6 years. As a result, the vast majority of instructors of mixed research courses never took a mixed research course themselves—unlike the vast majority of instructors of quantitative-based (e.g., statistics courses) and qualitative-based research courses. Thus, instructors of mixed research courses represent what Creswell et al. (2003) referred to as a “*first generation of faculty*” (p. 620). Unfortunately, as noted by Earley (2007), instructors of mixed research courses “find ourselves in the same situation: we were not officially trained in the mixed-methods research process and have to create these courses without the benefit of prior coursework to guide us” (p. 146).

As declared by Onwuegbuzie, Frels, Leech, and Collins (2011), the greatest challenge faced by the first generation of mixed research course instructors concerns the lack of works published in the area of mixed research pedagogy. Interestingly, Frels, Onwuegbuzie, Leech, and Collins (2012) found only 19 published works that were devoted predominantly or exclusively to the topic of teaching mixed research-based courses, which represented less than 2% of the mixed research works published between 2000 and 2009 that were identified by Ivankova and Kawamura (2010). Of these 19 works, only two of them (Creswell et al., 2003; Ivankova, 2010) provided substantive information about the challenges faced by instructors of mixed research courses.

Creswell et al. (2003) discussed pedagogical challenges that they labeled as: textbooks, mentoring/support, inconsistent terminology, personal bias, anxieties/misconceptions, and design and data analysis. With regard to textbooks, Creswell et al. discussed the possibility that finding an appropriate mixed research textbook might be challenging. However, with more than a dozen mixed research textbooks currently in existence, it is much less likely that this challenge still prevails. Mentoring/support refers to the lack of “well-established support systems of colleagues from which to draw” (p. 630). However, with the emergence of online mixed research discussion groups (e.g., <http://www.linkedin.com/groups/Mixed-Methods-Research-3794214>; <http://www.methodspace.com/group/mixedmethodsresearchers>) and special interest groups (e.g., American Educational Research Association Mixed Methods Special Inter-

est Group; http://www.aera.net/Default.aspx?menu_id=524&id=10668), several outlets exist for instructors to receive support.

Further, the use of inconsistent terminology in mixed research represents another challenge to mixed research course instructors that was discussed by Creswell et al. (2003). Personal bias, another challenge, involves the learning of multiple philosophical assumption and stances. Anxieties/misconceptions refer to all of the challenges and frustrations associated with quantitative and qualitative methods that students bring to mixed research courses. Finally, with respect to design and data analysis, Creswell et al. (2003) stated that “perhaps the biggest challenge instructors face when teaching mixed methods research is teaching students which design to use and how to analyze the data once they have been collected” (p. 632).

Similar to Creswell et al. (2003), Ivankova (2010) provided some evidence-based pedagogical challenges faced by one instructor of an online mixed research course. In particular, she discussed the challenge stemming from the teacher having to “rely on her own experience and student feedback in designing and teaching this online mixed methods course due to the lack of practical advice and related discussion in the literature” (p. 59). Another challenge represented finding the appropriate balance between reading and writing assignments. A third challenge stemmed from the goal of including a large amount of material into one mixed research course. Other pedagogical challenges discussed by Ivankova stemmed from the lack of resources that would serve as foundational readings for the online mixed research course, lack of a comprehensive mixed research textbook, having to rely on multiple reading sources, the diverse perspectives on mixed research, the varied terminology, and scarcity of published empirical mixed research studies in different disciplines that can be used as examples to guide students in their research proposals.

Although both the Creswell et al. (2003) and Ivankova (2010) works contain excellent information about pedagogical challenges, to date, no evidence-based challenges have been documented for face-to-face mixed research courses across various settings. To this end, the purpose of the present mixed research investigation was to examine the challenges faced by instructors who taught a variety of mixed research course formats, and to examine the extent to which these challenges are related to instructors’ mixed research-based philosophical assumptions and stances.

Research Questions

Qualitative research questions. The following qualitative research questions were addressed in this study:

1. What are the pedagogical challenges in mixed research courses faced by selected U.S.-based leading mixed methodologists?
2. What are similarities and pedagogical differences in mixed research courses in challenges faced by selected U.S.-based leading mixed methodologists?

Mixed research question. The following mixed research question was addressed in this study:

What are the pedagogical challenges in mixed research courses faced by selected U.S.-based leading mixed methodologists as a function of conceptual stance?

Theoretical Framework

According to Teddlie and Tashakkori (2010), there are six contemporary conceptual stances associated with mixed research: a-paradigmatic stance, substantive theory stance, complementary strengths stance, multiple paradigms stance, dialectic stance, and alternative paradigm stance (formerly called single paradigm stance). Each of these stances is summarized in Table 1. As stated by Teddlie and Tashakkori (2010), these six conceptual stances have “been used (explicitly or implicitly) by groups of scholars who are practicing MMR [mixed methods research]” (p. 14). Interestingly, Onwuegbuzie et al. (2011) documented a relationship between the conceptual stance of mixed research course instructors and their pedagogical approaches. Thus, we hypothesized in this study that the instructor’s conceptual stance (i.e., mixed research lens) would play an important role in the types of pedagogical challenges. As such, we believed that conceptual stance of mixed researchers provided an appropriate theoretical framework for this inquiry.

Method

Participants and Setting

Data collection for this mixed research study, part of a larger study investigating the experiences of instructors and students in mixed research courses, took place either face-to-face at various national and international conferences or remotely (e.g., via phone or Internet). The participants were 11 leading mixed methodologists, five men and six women, from various institutions in the United States who were instructors of mixed research courses. They were selected via a criterion sampling scheme (Bernard, 2000; Miles & Huberman, 1994; Onwuegbuzie & Leech, 2007). As noted by Guest, Bunce, and Johnson (2006), 12 interviews are sufficient to understand experiences and perceptions among a common group and as posited by Johnson and Christensen (2010), “when greater resources are available, collective case studies of around 10 cases are common” (p. 397). Therefore, we deemed the sample size of 11 instructors adequate for obtaining data saturation. The 11 participants taught a variety of mixed research course formats—specifically, (a) in a site-based 16-week semester format, (b) in a site-based condensed 3-weekend format, or (c) in an on-line 16-week semester format. Using the Carnegie Classification (The Carnegie Foundation for the Advancement of Teaching, n.d.), the instructors’ affiliations were as follows: institutions with very high research, institutions with high research, institutions with doctoral-level research, or institutions wherein research is not classified.

Table 1. Tashakkori and Teddlie's (2010) Six Conceptual Stances Associated with Mixed Research.

Conceptual Stance	Description
A-paradigmatic	Paradigms or conceptual stances are not important to real-world practice
Substantive theory	Theoretical orientations (e.g., critical race theory) are more pertinent to the underlying research study than are philosophical paradigms
Complementary strengths	Mixed research is possible but the different approaches must be kept as separate as possible in order for the strength of each paradigm to come to the fore
Multiple paradigms	A single paradigm is not appropriate for all mixed research designs; rather, different paradigms are relevant for different mixed research designs
Dialectic	Use of multiple paradigms in a single mixed research study yields greater understanding of the underlying phenomenon
Alternative paradigm	Single paradigm (e.g., pragmatism-of-the-middle; transformative emancipator) is used to support the use of mixed research

Per Teddlie and Tashakkori's (2010) framework, the mixed research conceptual stances of the 11 participants were as follows: five participants were classified as endorsing a dialectic stance, four participants were classified as supporting the alternative paradigm stance, one participant was classified as promoting the multiple paradigms stance, and one participant was classified as advancing the complementary strengths stance. Consequently, four of Teddlie and Tashakkori's (2010) six conceptual stances were represented by the 11 participants. Table 2 presents each participant's associated conceptual stance.

Instruments and Procedures

After Institutional Review Board approval was obtained, two researchers conducted the series of interviews as the means to obtain data. These interviews were audio-taped using two separate hand-held digital recorders to insure clarity of recordings. The interviews were semi-structured in nature, consisted of open-ended questions, and included probing

Table 2. The 11 Participants and Associated Conceptual Stance.

Conceptual Stance	Number of Participants Identified in Stance	Identifying Name for Each Participant
Alternative paradigm	4	Participant AP1 Participant AP2 Participant AP3 Participant AP4
Dialectic	5	Participant D1 Participant D2 Participant D3 Participant D4 Participant D5
Complementary strengths	1	Participant CS1
Multiple paradigms	1	Participant MP1
A-paradigmatic	0	
Substantive theory	0	

questions to obtain rich data (Geertz, 1973). Samples of interview questions are as follows:

1. What are the particular issues that students face in learning about mixed methods?
2. What are the issues for teachers in designing and delivering courses that aim to develop researchers' abilities to carry out mixed methods?

After interviews were transcribed, the participants were asked to complete member checking (Lincoln & Guba, 1985) in order to maximize descriptive validity (Maxwell, 1992). Further, the two researchers who were involved in interviewing the participants underwent debriefing interviews themselves (Frels, Onwuegbuzie, & Frels, 2010) because they served as primary research instruments (Poggenpoel & Myburgh, 2003). Debriefing interviews, as conceptualized by Onwuegbuzie, Leech, and Collins (2008), are designed to promote reflexivity; to identify biases in interpretation of data; and to obtain rich insights as to ways that the study impacted participants, stakeholders (i.e., instructors and students of mixed research courses), and the researchers themselves.

Mixed Research Design

In the current study, we utilized a qualitative-dominant mixed research design (Johnson, Onwuegbuzie, & Turner, 2007), wherein we adopted a qualitative, constructivist-poststructuralist-critical stance with respect to the research process, while, at the same time, deeming the inclusion of quantitative analyses to yield value-added inferences.

The embedded design utilized in this inquiry was a multiple case study (Yin, 2009)—also known as a collective case study (Stake, 2005). According to Stake (2005), a multiple case study represents an instrumental case study with multiple cases/participants who are instrumental to the study because the information they yield provides insight into the underlying phenomenon—in this case, the phenomenon of challenges in teaching mixed research courses. Specifically, an embedded design was utilized, wherein the results of each case were understood through cross-case analyses (Yin, 2009). The cases were bound together by the fact that participants were leading mixed methodologists who taught mixed research courses.

Data Analysis

In this study, we adopted a *dialectical pluralist* stance with respect to the research process, wherein we incorporated multiple epistemological perspectives within the same inquiry (Johnson, 2011). With respect to our data analysis phase, we utilized constant comparison analysis (Glaser & Strauss, 1967), classical content analysis (Berelson, 1952), word count (Leech & Onwuegbuzie, 2007, 2008), and keywords-in-context (KWIC; Fielding & Lee, 1998) via the software QDA Miner Version 4.0 (Provalis Research, 2011). The sources for naming codes and locus of typology (i.e., theme) development were investigative (i.e., stemming from the intellectual constructions of the researchers [Constas, 1992]) in an iterative process involving a posteriori coding. Also, the verification component was technical (e.g., use of intercoder agreement). Specifically, two of the researchers independently coded 20% of the interview data and after establishing 100% interrater reliability, using Cohen's Kappa measure (Siegel & Castellan, 1988), one researcher coded the remaining interview data. After naming codes, we conducted a Jaccard's coefficient to determine the co-occurrence of codes across and within each of the 11 cases. Also, a case-oriented analysis was utilized, with the focus on the high frequency themes and subthemes.

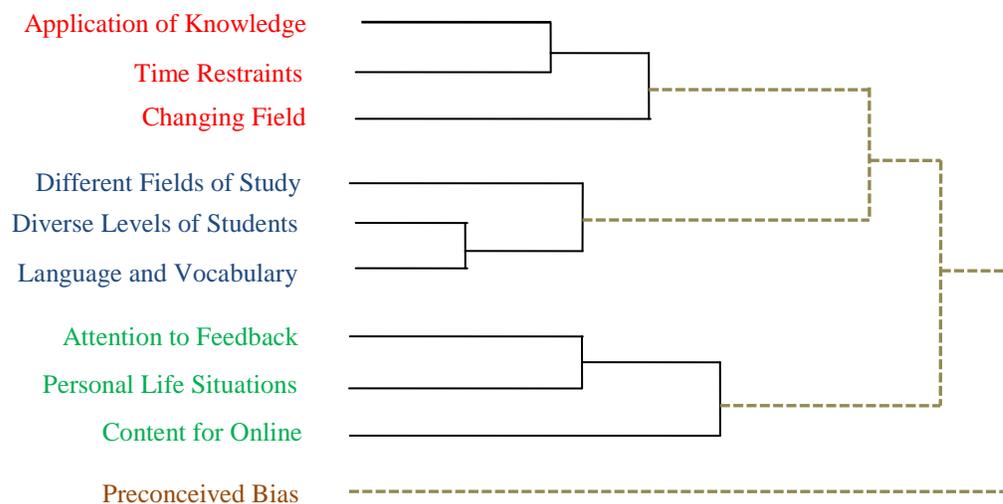
According to Sandelowski (2001), a narrative description can be enhanced via a word count. The word count list was condensed by eliminating words not specific to mixed research and challenges of teaching. In addition, KWIC was used to supplement the word count analysis. According to Leech and Onwuegbuzie (2007, 2008), the purpose of KWIC is to indicate how words are used in context with other words. As noted by Fielding and Lee (1998), KWIC represents an analysis of the culture of the use of the word. Moreover, "the assumption underlying KWIC is that people use words differently and, thus, by examining how words are used in context of their speech, the meaning of the word will be understood" (Leech & Onwuegbuzie, 2008, p. 594).

These analytical procedures relied heavily on the discretion of the researchers, as a participative element of the process (Constas, 1992) and served as a means for maintaining analytic integrity (Miles & Huberman, 1994). First, the coding procedure considered three components outlined by Constas (1992): (a) origination, which is the programmatic language, the investigation, review of literature, or interpretations of the data; (b) verification, which is the evidence that the categories have a logical connection and can be verifiable in existing research; and (c) nomination, which is the process of naming the categories and resulting in logical connections. Categories that emerged were *investigative* and codes were named based on the analysis, conducted a posteriori (Constas, 1992), using the language of the participants (i.e., folk terms; Spradley, 1979).

As part of the cross-case analysis, the subthemes extracted from the interviews were subjected to a correspondence analysis. Broadly speaking, a correspondence analysis is an exploratory multivariate technique involving factoring categorical (i.e., nominal level) variables and mapping them in a property space that displays their associations in two or more dimensions (Michailidis, 2007).

Results

The constant comparison analysis identified 10 emergent subthemes that clustered into the following four themes: (a) Time, (b) Diversity, (c) Preconceived Bias, and (d) Format/Life Situations. It should be noted that the third theme (i.e., Preconceived Bias) stood alone yet co-occurred indirectly to the other three themes. Therefore, we present this theme as a stand-alone theme. Figure 1 presents the four themes as they relate to each other. Table 3 presents the themes and subthemes from the constant comparison analysis, descriptions, and significant statements.



Agglomeration Order: Jaccard’s coefficient (Occurrence)

Figure 1. Four themes that emerged as dimensions of challenges pertaining to teaching mixed research courses.

Table 3: Meta-Themes, Themes, and Definitions of Challenges of Teaching Mixed Research.

Theme	Subtheme	Definition of Challenge
Time	Application of Knowledge	Teaching students methodology specific to mixing quantitative and qualitative research (e.g., sampling, data analysis, integration of quantitative and qualitative approaches)
	Time Restraints	Covering methodological concepts of quantitative and qualitative as well as mixed approaches in one course
	Changing Field	Using current literature specific to strong mixed method design in a newly evolving research tradition
Diversity	Diverse Levels of Students	Addressing in one course students who are stronger in one research approach (e.g., qualitative) versus the other approach (e.g., quantitative)
	Language and Vocabulary	Teaching research language pertaining to research in general <i>and</i> terms specific to mixed methods (e.g., convergent parallel design, pragmatism)
	Different Fields of Study	Developing a course that meets the needs of students from various departments within the university
Preconceived Bias		Helping students overcome predetermined misperceptions pertaining to one approach (e.g., qualitative) versus the other approach (e.g., quantitative)
Format/Life Situations	Attending to Feedback	Changing each course presentation from semester to semester to increase students' understanding and application of mixing approaches
	Personal Life Situations	Addressing the typical students issues that arise but that are more intense due to the complexity of course content
	Online	Adapting multifaceted concepts so that self-directed online learning is successful

As can be seen in the occurrence of subthemes in Figure 1, when participants mentioned the application of knowledge, often they discussed closely the time restraints relating to the amount of material to present and to apply. These two subthemes also connected to the idea that the field of mixed research is changing quickly as it evolves, comprising the theme of Diversity. In the theme of Time, the subtheme of Diverse Levels of Students was linked to the subtheme Language and Vocabulary, as well as the subtheme of Different Fields of Study. In the theme Format/Life Situations, subthemes of Attending to Feedback, Personal Life Situations, and Online were clustered as they related to the human considerations pertaining to the challenges of teaching mixed research. Finally, as shown in Figure 1, the theme of Preconceived Bias has a dotted line linking it to each of the other three themes. The following sections present the four themes representing the four dimensions of challenges, which are presented in order of dominance (i.e., prevalence rates among the participants' voices), starting with the most dominant theme and its respective subthemes.

Diversity

The theme of Diversity comprised the subthemes of (a) Diverse Levels of Students, (b) Language and Vocabulary, and (c) Different Fields of Study. Diverse Levels of Students emerged as the most dominant subtheme when considering frequency ($n = 31$) and occurrence (i.e., 8 of 11 participants). One instructor stated,

My philosophy is that I am going to modify materials and lectures as necessary for the group of students and I often modify my expectations of what the students need based on what they're coming in with. I've got some students that come into introductory research that have no research background, and I have others that are coming into the advanced mixed methods class that have quite a bit of research background, but often in one strand.

In addition, instructors often discussed philosophical challenges that related to Diverse Levels of Students and mixing research paradigms. For example, one instructor explained,

Exposure to research, it's not uncommon, where I am anyway, for students to come into the class, maybe they've taken two research courses and so they're kind of ill prepared to take a mixed research course and hit the ground running. Another issue that they face—again at my institution and several others where I've taught before—is lack of exposure to philosophy of research. It's very rare for me to find a student who is really aware, who has an identity in terms of research philosophy; that they know, for example, if they are a constructivist, or a pragmatist, or what have you, prior to the course.

The subtheme of Language and Vocabulary was the second overall dominant subtheme with six of the 11 participants discussing it and an overall frequency count of 11. In addition, most often when instructors mentioned the challenge of teaching diverse levels of students, they closely related this challenge to the diverse levels of vocabulary. Consider-

ing the language that is specific to research, it is not surprising that mixed research utilizes language from both quantitative and qualitative research traditions; subsequently, the vocabulary in mixed research courses would be quite extensive. One instructor explained,

They just have to learn not only the content but also they have to learn the language, the terminology, and actually, the concepts you know. Content is more methodological, how you do things differently in mixed methods research, quantitatively or qualitatively, but concepts you know new things that are unique to mixed methods research for example like how you integrate.

Pertaining to the subtheme Different Fields of Study ($n = 4$) within the theme of diversity, four participants noted how often they found themselves challenged when working with students from different colleges within their universities. One participant noted,

I think the biggest thing is that students come with varied backgrounds. My students come from multiple schools within the university. So I'll have nursing students, I'll have school of education students, I'll have school of public affairs students and, health and behavioral science students.

Time

The theme of Time was the second most dominant theme and comprised three subthemes: (a) Application of Knowledge, (b) Time Restraints, and (c) Changing Field. Of these subthemes, Application of Knowledge ($n = 18$; across 8 of 11 cases) was most dominant. One participant explained,

[Students] also struggle with separate topics, you know, specifically integration or mixing, legitimation issues, and that depends on the individual level and it depends on the coursework these students have or had in their research experiences.

In addition, it was apparent that the majority of teaching challenges pertained to methodological concepts of mixed research—as another participant suggested,

And I think, one of the things that I found is that students tend to not always flounder in the same area. So even though I can usually expect students to really struggle with the data analysis portion or the data integration portion, some students really have a hard time entering qualitative data and making numbers out of it. You know that they struggle with that.

Finally, a third instructor explained the specific content that is unique to mixed research and, therefore, is a challenge:

Well, if you're doing QUAL-QUAN when doing the QUAN component, there is an inadequate QUAL sample—there's not enough people, and not a randomly selected sample, to do the QUAN component. And if it's QUAN-QUAL, you have too many people from the QUAN component for the QUAL strategy, and you

have to really decide how you're going to select them. In a sequential design, it's even more problematic, because you can't find the subjects—they've gone away.

These sampling problems are only the beginning. There are problems in the analysis, in the way you incorporate the results...

A second subtheme of Time, specifically Time Restraints ($n = 10$), was discussed by four of 11 participants. Due to its complexity, mixed research was explained by participants as requiring much time. One participant described this challenge as follows:

So I think that's like a big problem from the beginning. In terms of a second issue [students] have a hard time understanding how to conceptualize mixed methods, particularly in terms of writing the research questions, mixed methods research questions. There seems to be some problems there. Just in terms of trying to come up with an overarching problem that you're interested in and then coming up with complementary sets of quantitative or qualitative questions. So that usually takes a lot of time.

In addition, the same participant explained,

I also think that there's just not enough time in a typical semester to get the students to plan any well-designed individual (solo conducted) mixed methods research project in that period of time. So, the teacher has to decide whether they're going to have the students do a proposal, whether they're going to have them work in groups to try to actually gather some qualitative and/or quantitative data and do an actual study.

The subtheme Changing Field ($n = 9$) was discussed by six participants. These instructors, as leading authors in the field, were cognizant that current literature was critical to understanding the quickly evolving field of mixed research. One participant contended,

I think there's a lot that is emerging now in mixed methods. And it is a field that we need to, be ready—quick on our feet I guess—to learn about what's emerging. It's not a field where you can take the old trusty textbook and say 'okay I got it out here.' And so the question really is 'how do we keep fresh with what's developing?' And of course there are avenues, there are avenues. The Journal of Mixed Methods Research is great.

In addition, finding credible articles was important to one instructor as he/she explained, “Are you asking me what I think is needed to better understand strategies for teaching missed methods? First, it is hard to find good examples—published, yes.”

Preconceived Bias

The theme of Preconceived Bias ($n = 6$ across four of 11 cases) refers to the way instructors explained the mindset of students and the challenges associated to the preference of

one research paradigm over another (i.e., quantitative, qualitative). As explained by one instructor,

So I do think *there are still people* who think either— we don't need mixed methods because it's so simple, you know you just do this and you just do that and what do you have to learn about. Or, because they really truly believe they are situated within one particular approach and that's sufficient, you know, you shouldn't force or expect people to be competent across boundaries...sometimes people are very entrenched in the beliefs that their method is the one that's right. And, that, they can't really be an expert in everything so it's ridiculous to try.

Another instructor noted how students might have been influenced by preconceived bias of former instructors:

Attitudes—they [students] unfortunately come to mixed research classes with negative attitudes either from other instructors, professors, or from their peers with a negative attitude, and have a lack of appreciation of how powerful research can be in their fields.

A third instructor reflected further on the challenge of teaching mixed research and preconceived bias and remarked,

I think where professors of mixed methods research are the most vulnerable would be from criticism by qualitative researchers who say “How do you expect students to really understand the qualitative side of it if they haven't spent a significant amount of time out in the field actually experiencing, what it is that they're studying?” And I think that's a really good criticism. And so what I hope students would get is some sort of feeling of what that's about—that is what the qualitative end of mixed methods is about.

As noted previously, the theme Preconceived Bias was not clustered with one specific theme, yet related to all three themes in some way (See Figure 1). One instructor addressed the challenge of bias in the following manner:

Definitely a lot is needed in teaching strategies because it's a new area. How do you teach mixed research? One of the problems we have in courses, in general mixed research courses, is that the instructor himself or herself may not be strong in both approaches, he or she may not be adequately strong in both quantitative and qualitative techniques so then there's a struggle; you know, what do you do? Well, obviously for me, one solution is to have people team-teach the course. So, you have two or more people team-teaching the course; so, maybe you have one or more that is quantitative oriented, other qualitative oriented and together students will get the best of both worlds.

Format/Life Situations

In Format/Life Situations, subthemes of (a) Attending to Feedback, (b) Personal Life Situations, and (b) Online referred to the personal challenges of students with respect to learning mixed research and challenges. The subtheme Attending to Feedback ($n = 4$; across four of 11 cases) referred to the challenge of providing feedback to various levels of students and various levels of groups of students as a whole. One instructor explained that because he/she used current readings due to the quickly changing field, preparation time can be extensive and attending to individual student feedback can be challenging:

Every semester has different sets of readings. And I've actually found that one of the challenges that I faced the last semester was too orientated towards philosophy. I need to back out of that. Those are decisions that I make on a continual basis. A lot of the modifications end up happening through a combination of asking students for feedback, and looking at the work they are doing.

For another instructor, one challenge involved how best to amend the many concepts of mixed research after reflecting on one course cycle before moving to the next. He/she remarked,

There's so much to cover in one course. You know it's sort of build from the knowledge that we have in QUAN and QUAL but there's still so much issues with mixed methods today. Students cannot get everything in one course that is needed for developing the proposal is too much. That is one issue that I always have—is to think at the beginning when each course began every year. I think, I sit down and look at my syllabus and think what would be the best logical way to present the topics? What should I change? And I change it every time, I change something.

Another subtheme, Personal Life Situations ($n = 3$; three of 11 cases) related the idea that due to the extensive nature of mixed research, coursework might take more of a personal toll on students. As explained by one instructor,

Generally an issue I have is my high expectations and the rapid pace of the courses. It is a challenge for those that are working full time. It is very difficult. In the introductory class, it's [working students] generally is over 50%. At the doctorate level, I would say it's probably, 30 to 40% or something like that but I can't be sure.

Closely related in Theme 3 to Personal Life Situations is the subtheme of Online ($n = 2$ in two cases overall). One participant who taught mixed research solely in an online format emphasized that time constraints due to personal lives are magnified and stated, “I also use a Tegrity program because some cases there are students who don't want to interact because of time constraints or because they can't all come together at that one moment.” He/she also noted with respect to understanding new concepts and online content that,

When considering the framework relative to use of terminology, and relative to recognition of different philosophical stances, influences, how one approaches mixing. I teach online so that I think that there's an added level of concern on the part of the students because they can't necessarily see me [in a face-to-face context].

Interestingly, Theme 3: Format/Life Situations overall appeared to be challenges that many traditional research courses might include. In short, research methodology courses can be challenging to students, and these challenges increase in mixed research courses due to the fact that mixed research coursework includes *multiple* aspects of both quantitative and qualitative traditions as well as the new content and terminology specific to mixing.

Relationship of Themes

Figure 2 presents the subthemes pertaining to challenges of teaching mixed research in summation, regardless of cluster, and overall frequency.

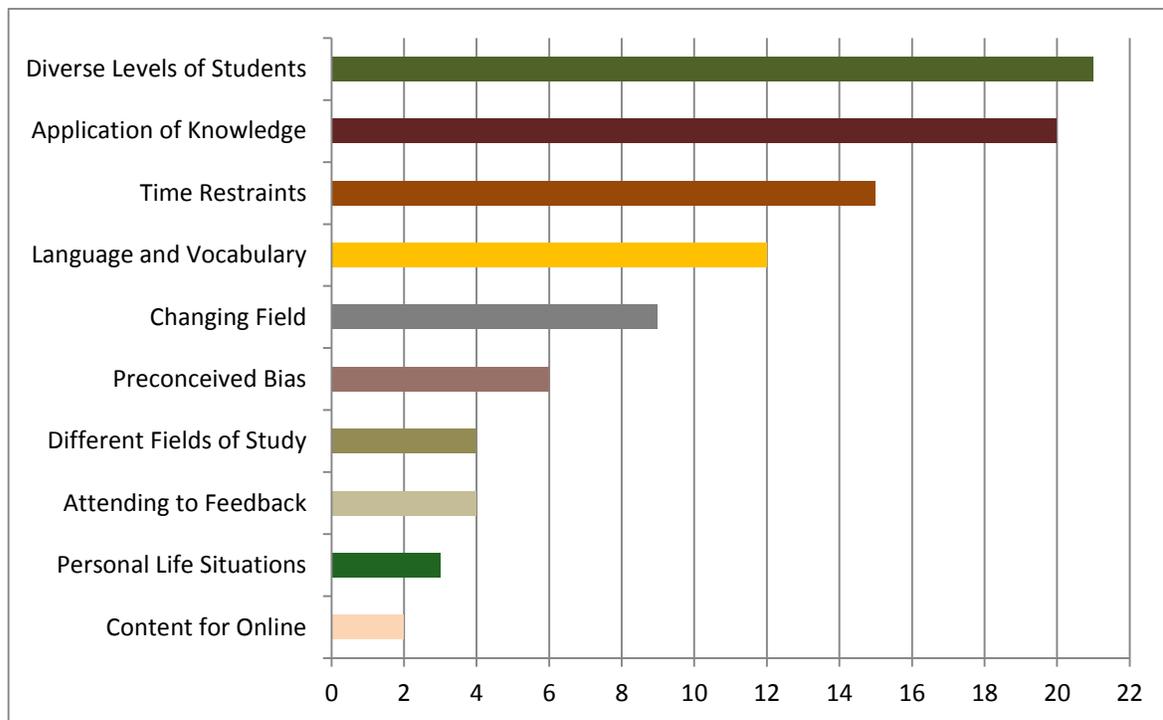


Figure 2. Overall frequencies of themes pertaining to challenges of teaching mixed research courses.

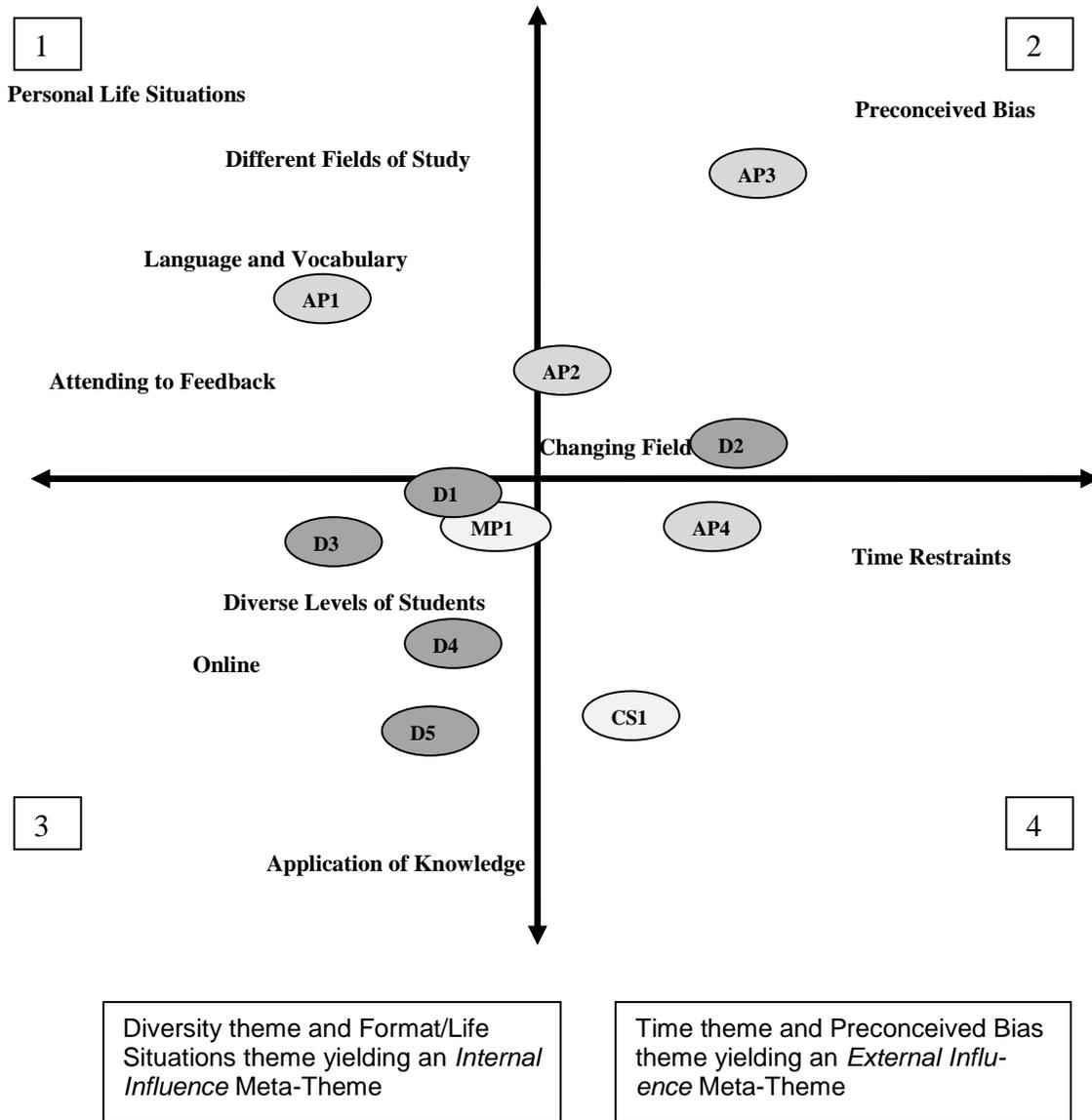


Figure 3. Correspondence analysis of 11 participants and relationship with each other and with respective themes. Also, the quadrants are numbered 1-4.

Figure 3 displays the correspondence plot that emerged when the 10 subthemes were mapped onto a two-dimensional representation. As can be seen from this figure, the Preconceived Bias theme resided by itself on the upper right quadrant (i.e., Quadrant 2), indicating the uniqueness of this theme. Further, all the subthemes pertaining to the Diversity theme and all the subthemes pertaining to the Format/Life Situations theme were positioned on the left side of the continuum of the horizontal axis (i.e., Quadrant 1 and Quadrant 3), whereas two of the three subthemes pertaining to the Time theme (i.e., Changing Field and Time Restraints) were positioned on the right side of the continuum of the horizontal axis (i.e., Quadrant 2 and Quadrant 4). Thus, the left side of the continuum of the horizontal axis almost exclusively was characterized by the Diversity and the

Format/Life Situations themes, whereas the right side of the continuum of the horizontal axis almost exclusively was characterized by the Time and Preconceived Bias themes. As such, the correspondence analysis maximally separated Diversity and the Format/Life Situations themes from the Time and Preconceived Bias themes. Moreover, this distinction means that the four themes each fell somewhere on a continuum that lay from *internal* influences that characterized an interaction between instructors and students (i.e., Diversity, Format/Life Situations) to *external* influences that characterized an interaction between instructors and curricula pertaining to the rapidly evolving field of mixed research yielding the meta-themes of internal influence and external influence. Interestingly, the subtheme that was clustered closest to the origin (i.e., intersecting axes) as a central subtheme among instructors was Changing Field.

In Figure 3, participants are identified as they are positioned in the four quadrants and with respect to the 10 challenge themes. Specifically, one instructor is positioned in Quadrant 1, three instructors are located in Quadrant 2, five instructors are positioned in Quadrant 3, and two instructors are located in Quadrant 4. Upon closer examination of Figure 3, it can be seen that the one instructor who held the Multiple Paradigms conceptual stance (i.e., MP1) is situated in Quadrant 3. In contrast, the one instructor with the Complementary Strengths stance (CS1) is situated in Quadrant 4. However, the two sets of conceptual stances that best illustrated the role that conceptual stances played in the formation of challenges were represented by the Dialectic stance and the Alternative Paradigm stance. Specifically, four of the five instructors who were classified as representing a Dialectic stance (i.e., D1, D3, D4, D5) were clustered together in Quadrant 3. In contrast, three of the four instructors who were classified as representing an Alternative Paradigm stance (i.e., AP1, AP2, AP3, AP4) are scattered farthest away from each other on the correspondence plot, appearing in three of the four quadrants (i.e., Quadrant 1, Quadrant 2, Quadrant 4). However, three of these four Alternative Paradigm stance instructors were situated on the external influence side of the continuum.

Finally, Table 4 presents keywords, overall frequencies, and frequency of dominant keywords specific to teaching mixed research and challenges among cases. Not surprisingly, the words *qualitative* and *quantitative* were used highly across the majority of cases. Interestingly, instructors were invested highly in helping students overcome challenges associated with a research proposal or dissertation. Also, philosophy was important to instructors. Other words pertaining to the challenges of teaching mixed methods research courses were associated with methodology, such as *mixing*, *designs*, *sampling*, and *philosophy*. Also, instructors mentioned specific textbooks or articles associated with authors such as Tashakkori and Teddlie's (2010) *Sage Handbook of Mixed Methods in Social and Behavioral Research*, Teddlie and Tashakkori's (2009) *Foundations of Mixed Methods Research*, Creswell and Plano Clark's (2010) *Designing and Conducting Mixed Methods Research*, and Johnson et al.'s (2007) definition of mixed research.

Table 4. Keywords and Frequencies Across 12 Cases Pertaining to Challenges of Teaching Mixed Research.

	FREQUENCY	NO. CASES
QUALITATIVE/QUAL	171	12
QUANTITATIVE/QUAN	130	12
DESIGN	61	10
METHODOLOGY	44	10
MIXING	30	8
PROPOSAL	27	9
METHOD	24	8
DISSERTATION	23	5
PHILOSOPHY	23	4
DESIGNS	21	5
QUAL	21	4
PHILOSOPHICAL	18	7
LANGUAGE	15	5
SAMPLING	13	6
TASHAKKORI	12	5
STANCES	10	4
INTEGRATION	9	6
LEVELS	9	6
TERMINOLOGY	9	5
TEDDLIE	8	4
HANDBOOK	7	6
JOHNSON	7	5
CRESWELL	7	4
BACKGROUNDS	6	4
PARADIGMS	6	4
ONWUEGBUZIE	5	5
PARADIGM	5	4
DICHOTOMOUS	5	3

Discussion

The four themes that emerged pertaining to pedagogical challenges comprised 10 sub-themes, which suggests that pedagogical challenges represent a multidimensional construct of both internal and external influences. Moreover, the finding that these challenges all lie on a external-internal influence continuum is particularly noteworthy because it implies that instructors might consider addressing their challenges by dividing their strategies into short-term strategies (i.e., pertinent to the most current course) and long-term strategies (i.e., pertinent to future course).

Another important finding is that, for the most part, these challenges appear to arise as a function of the instructor's philosophical stance. Indeed, this finding has intuitive appeal because it addresses the importance of each instructor being aware of their philosophical assumptions and stances prior to designing their mixed research courses. In particular, the finding that the instructors subscribing to the Alternative Paradigm stance were located far away from each other in general also has logical appeal because what members of this stance have in common is the belief that philosophical assumptions and stances underlying mixed research should be different from those assumptions and stances underlying quantitative (e.g., post positivism) and qualitative research (e.g., radical constructivism, critical theory) traditions. As such, for example, researchers who consider themselves as subscribing to the transformative-emancipatory stance (cf. Mertens, 2003) and those who consider themselves to be critical realists (cf. McEvoy & Richards, 2006) would be classified under Teddlie and Tashakkori's (2010) Alternative Paradigm stance even though these two stances are substantively different—likely explaining why these participants did not all cluster together on our correspondence analysis plot. However, the fact that these Alternative Paradigm instructors tended to identify challenges that represented external influences suggests that these instructors are more likely to view long-term challenges as problematic. Another interesting finding is that the participants who held beliefs associated with the Dialectic stance, with the exception of one participant, tended to be clustered together in Quadrant 3 near the origin of the plot and especially around the Diverse Levels of Students and Applications of Knowledge subthemes, which indicates that these instructors identified challenges that turned out to be the two most common challenges (cf. Figure 2).

An important implication for practice is that, based on the current findings, new instructors of mixed research courses potentially have numerous challenges that they should attempt to address when designing their mixed research courses. Interestingly, most of these challenges are unique to the field of mixed research. For example, although the fields of quantitative research and qualitative research have a long tradition, the field of mixed research is relatively new and thus represents a rapidly changing field (i.e., a component of the Time theme). By reflecting on their philosophical assumptions and stances as well as preparing examples of important keywords and concepts outlined in our study, new instructors might be able to predict what their most important challenges will be and make plans to address them to the fullest extent possible. As such, we hope that, at the very least, our findings at least will bring to light some of the major challenges that new mixed research instructors might face, as well as validate some of the challenges experienced by instructors who have already taught mixed research courses.

In closing, the present study was unique in at least four ways. First, the present study appears to represent only the third study—the other studies being Creswell et al. (2003) and Ivankova (2010)—wherein the challenges faced by instructors of mixed research courses have been documented. Second, this appears to be the only formal study in which the challenges faced by several instructors of mixed research courses were compared and contrasted within the same framework. Third, this study appears to represent one of only a few studies in which formal interviews were used to examine the experiences of mixed

research courses. Fourth, this is the first study, to date, to use mixed research techniques extensively to examine this phenomenon. We hope that through our research of challenges of teaching mixed research courses, the future of mixed research might be influenced through detailed planning, proactive strategies for addressing diversity, and careful attention to the many facets important for instructors to consider toward student success.

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