Pedagogical Strategies Used by Selected Leading Mixed Methodologists in 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

The teaching of research methods is common across multiple fields in the social and educational sciences for establishing evidence-based practices and furthering the knowledge base through scholarship. Yet, specific to mixed methods, scant information exists as to how to approach teaching complex concepts for meaningful learning experiences. Thus, the purpose of this mixed research study was to examine strategies used by selected U.S.-based leading mixed methodologists in mixed research courses as related to significant learning goals for course design. In addition, we examined the extent that their philosophical stances influenced teaching and course objectives for student learning. Participants were 12 leading mixed methodologists who were instructors of mixed research courses from various institutions representing multiple conceptual stances applicable to the teaching of mixed research. Instructional practices are presented for instructors to consider when designing and teaching mixed research and general research methodology courses across disciplines.

Keywords: Mixed methods research, mixed research, pedagogy, learning goals, conceptual stance, philosophical assumptions.

The last decade has witnessed an exponential increase in the number of mixed methods research studies - hereafter referred to as mixed research - in the published literature (i.e., journal articles, book chapters, books). Indeed, Ivankova and Kawamura (2010), who examined five major databases (i.e., PubMed, ERIC, PsychInfo, Academic One File, and Academic Search Premier) representing 10 subject areas (i.e., business, communication studies, education, health and medicine, library studies, political studies, psychology, social work, sociology, and women's studies) and two mixed research journals (i.e., *Journal of Mixed Methods Research* and *International Journal of Multiple Research Approaches*) from January 2000 to April 2009 documented that the number of methodological mixed research articles increased from 3 in 2000 to 26 in 2006 and 22 in 2008. In ad-

---

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

dition, the number of empirical mixed research articles increased from 10 in 2000 to 243 in 2008.

Despite this increase in the number of published mixed research works, there are still some topics related to mixed research that have received relatively little attention. In particular, Teddlie and Tashakkori (2010) identified the following nine important issues or controversies in contemporary mixed research: (a) conceptual stances; (b) the conceptual/methodological/methods interface; (c) the research question or research problem; (d) language; (e) design issues; (f) analysis issues; (g) issues in drawing inferences; (h) practical issues in the application of mixed research (e.g., pedagogy, collaboration, other models, funding); and (i) cross-disciplinary and cross-cultural applications. However, of these nine issues/controversies, we believe that the most important issue pertains to pedagogy because the ways in which students of mixed research are trained will play an important role in shaping the future of researchers across multiple disciplines in the social and educational sciences.

Thus, it is surprising that relatively few works have been published in the area of pedagogy in mixed research even though research, per se, influences best practices and contributes to essentially every field. Interestingly, slightly more than 10 years ago, in their thought-provoking chapter that appeared in the seminal first edition of the *Handbook of Mixed Methods Research* (Tashakkori & Teddlie, 2003a), Creswell, Tashakkori, Jensen, and Shapley (2003) observed that pedagogy of mixed research and research pertaining to the nature of mixed research courses need greater attention, and initiated a call for further research in this area. However, in the 6 years (i.e., 2004-2009) that followed Creswell et al.'s (2003) call, only five works had been published in the area of mixed research pedagogy. Encouragingly, in 2010, James H. Davidson, Publishing Director of the *International Journal of Multiple Research Approaches*, provided some leadership in this area by publishing a special issue on teaching mixed research that was guest-edited by Leech, Onwuegbuzie, Hansson, and Robinson (2010). This special issue contained nine articles that more than doubled the number of pedagogical works. However, despite this surge in works in 2010, the number of published works in this area remains relatively scant. As conveyed by Earley (2007), instructors of research methodology courses need a better understanding of how to teach students to address research from more than a mono-method design.

Building on the works of Onwuegbuzie, Frels, Leech, and Collins (2011), we conducted a comprehensive review of literature databases representing numerous social and behavioral science disciplines (e.g., business, education, psychology, social work, sociology, health and medicine, political studies, library studies, communication studies) for the years for which records existed, which revealed only 20 works, to date, devoted predominantly or exclusively to the topic of teaching mixed research-based courses. These 20 works are presented in Table 1. Further, Figure 1 displays the frequency of pedagogical works published per year and the focus of each work. These 20 pedagogical works represent a very small percentage (i.e., approximately 2%) of the 802 mixed research articles (113 methodological and 689 empirical) published between 2000 and 2009 that were identified by Ivankova and Kawamura (2010).

Table 1. Citation Map of Works Published Pertaining to Pedagogy of Mixed Research.

	Citation	Type of Work
1.	Bazeley (2003)	Conceptual/Theoretical
2.	Tashakkori & Teddlie (2003b)	Conceptual/Theoretical
3.	Creswell, Tashakkori, Jensen, & Shapley (2003)	Multiple mixed research-based courses or workshops at several institutions
4.	Onwuegbuzie & Leech (2005)	Conceptual/theoretical
5.	Earley (2007)	Single mixed research-based course or training program
6.	Niglas (2007)	Multiple mixed research-based courses taught at the same institution
7.	Christ (2009)	Multiple mixed research-based courses taught at the same institution
8.	Collins (2010)	Conceptual/Theoretical
9.	Greene (2010)	Conceptual/Theoretical
10.	Leech & Onwuegbuzie (2010)	Conceptual/Theoretical
11.	Mertens (2010)	Conceptual/Theoretical
12.	Onwuegbuzie, Leech, Murtonen, & Tähtinen (2010)	Conceptual/Theoretical
13.	Leech, Onwuegbuzie, Hansson, & Robinson (2010)	Conceptual/Theoretical
14.	Christ (2010)	Single mixed research-based course or training program
15.	Hansson (2010)	Single mixed research-based course or training program
16.	Ivankova (2010)	Single mixed research-based course or training program
17.	Baran (2010)	A series of quantitative and qualitative research courses taught at the same institution
18.	Coronel Llamas & Boza (2010)	Research methods in general
19.	Onwuegbuzie, Frels, Leech, & Collins (2011)	Multiple mixed research-based courses or workshops at several institutions
20.	Frels, Onwuegbuzie, Leech, & Collins (2012)	Multiple mixed research-based courses or workshops at several institutions

Most importantly, although each of these 20 works provides extremely useful information that adds to the knowledge base in the area of mixed research pedagogy, as noted by Onwuegbuzie et al. (2011) and as seen in Table 1, with two exceptions (i.e., Creswell et al., 2003; Onwuegbuzie et al., 2011), all of these works are either conceptual/theoretical in nature, or they describe a single mixed research-based course or training program, multiple mixed research-based courses taught at the same institution, or a series of quan-

titative and qualitative research courses taught at the same institution. However, none of the empirical works involved the comparison of pedagogy from multiple mixed research courses taught at various institutions. Thus, the transferability of the findings from these works - each of which could be described as essentially representing an intrinsic case study (Stake, 2005) - could not be assessed directly by their authors. Creswell et al.'s (2003) research in the area of mixed methods pedagogy offered insight for future research and discussion pertaining to how best to teach optimally the "new and more complicated designs" (p. 633) to students.
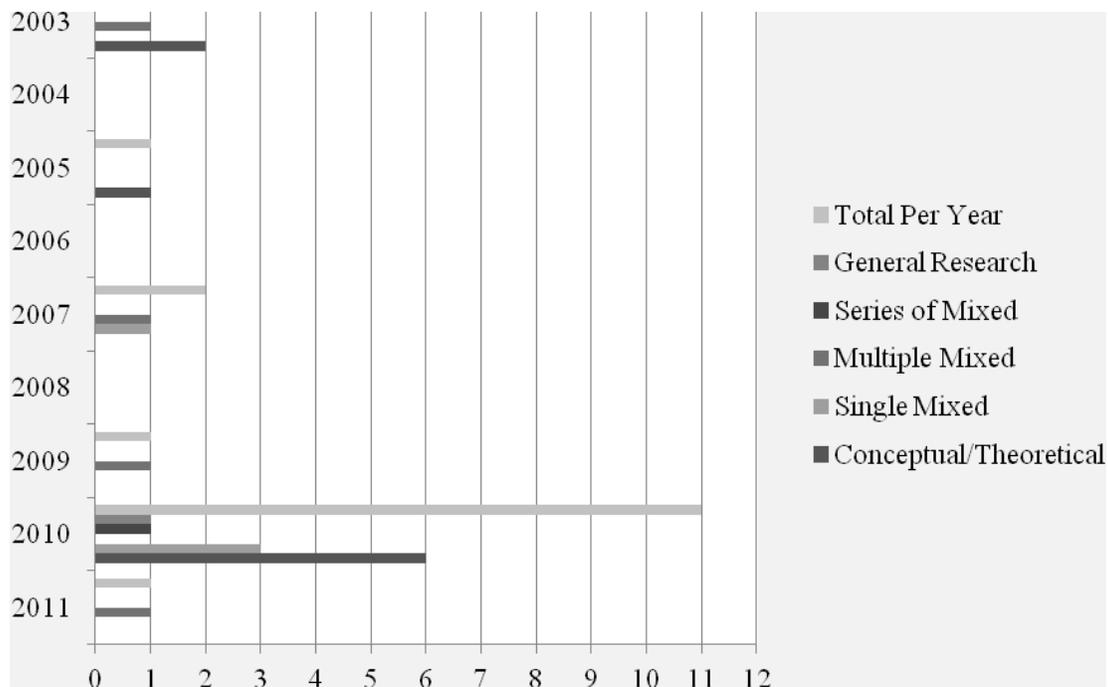

Figure 1. Frequency of works published per year and focus of the work.

Onwuegbuzie et al. (2011) responded to Creswell et al.'s (2003) call for more information regarding the content and nature of mixed research courses. These researchers utilized mixed research techniques to compare and to contrast pedagogical approaches used by instructors in mixed research courses as well as documenting the learning experiences of students enrolled in a mixed research course. Among the numerous findings emerging from the instructor interview data was the emergence of a three-dimensional model for categorizing and organizing pedagogical approaches used in mixed research courses (cf. Figure 2). These three dimensions represented the following three metathemes - each representing a continuum - that emerged from the constant comparison analysis: Orientation (i.e., the extent to which the instructor instills the importance of understanding qualitative and quantitative research traditions before mixing research approaches), Level of Application (i.e., the degree to which the mixed research course was taught in an applied manner), and Level of Structure (i.e., the degree to which the mixed research course was structured).
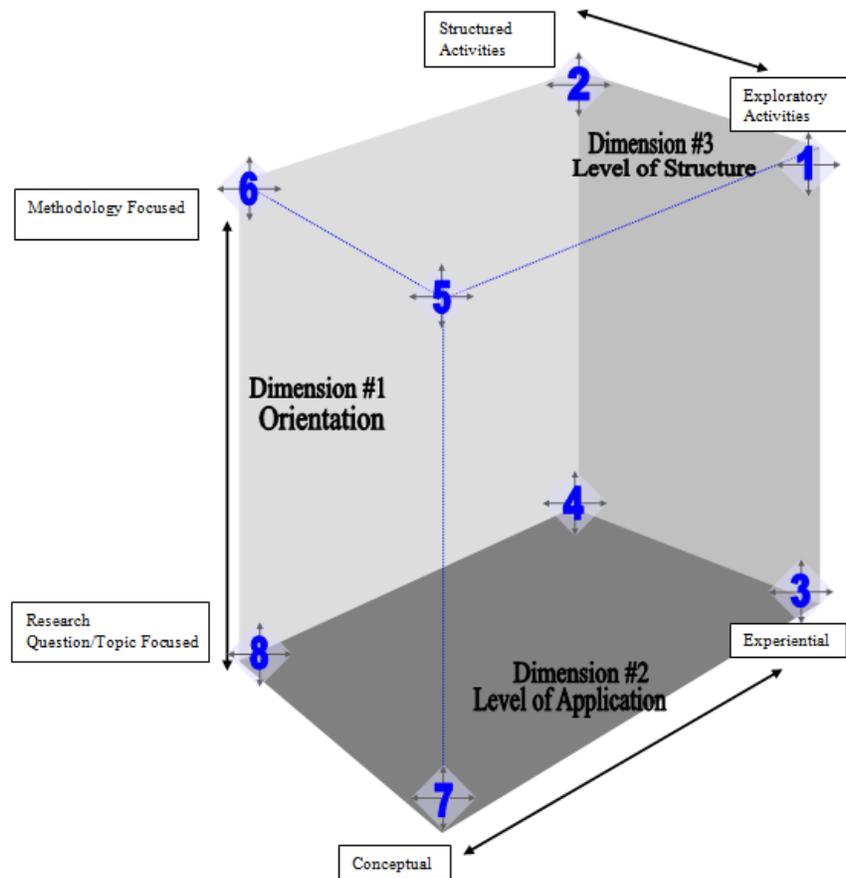
Figure 2. A three-dimensional model for categorizing and organizing pedagogical approaches used in mixed research courses. Directionality of the continua across each dimension is arbitrary. There is no intentionality of suggesting superiority of one continuum point or extreme over another. Rather, the appropriateness of the continuum point depends on the mixed research instructor. Encircled numbers represent eight possible combinations of the extreme points on the three dimensions of orientation, level of structure, and level of application.[2]

According to Onwuegbuzie et al. (2011), the number of prior research methodology courses taken by students directly impacts the quality of mixed methodological dissertation research proposals. Further, the vast majority of students in this study (91.7%) reported positive course experiences and expressed positive perceptions about mixed research. Onwuegbuzie et al.'s (2011) mixed research study demonstrated the utility of conducting instrumental case studies - specifically, multiple/selective case studies - to study pedagogical approaches in mixed research courses. Building on Onwuegbuzie et al.'s (2011) inquiry, the purpose of the present study was to reveal and to examine the concepts and associated pedagogical strategies that are deemed important to teach from the perspectives of leaders in the field of mixed research. Through this inquiry, it was our

---

[2] This figure was adapted from Onwuegbuzie, Frels, Leech, and Collins (2011).

hope that instructors of mixed research courses - as well as instructors of comprehensive research courses - develop a greater understanding of philosophical/conceptual perspectives and pedagogical strategies that address significant learning experiences.

Research Questions

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

1. What are the dominant learning goals in mixed research courses used by selected U.S.-based leading mixed methodologists?
2. What are similarities and differences in pedagogical strategies used by selected U.S.-based leading mixed methodologists?

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

> What are the dominant learning goals in mixed research courses used by selected U.S.-based leading mixed methodologists as a function of conceptual stance?

Conceptual Framework

Our study was framed using Fink's (2003) six categories of learning goals as outlined by Earley (2007) in his seminal article for developing a syllabus. Fink (2003) developed a model of integrated course design that involves a 12-step process for creating significant learning experiences that are characterized by the following three key sets of recursive decisions: learning goals, teaching and learning activities, and feedback and assessment. The second of the 12 steps - which is part of the initial phase (i.e., building strong primary components) in integrated course design - represents a particularly important step. This step involves formulating *significant learning goals*. According to Fink (2003), instead of identifying a list of topics that students should learn about or master, course instructors should use a "learning-centered approach and identify what students should get out of the course" (p. 73). As such, Fink (2003) advanced a taxonomy of significant learning that promotes the following six types of significant learning: (a) *foundational knowledge* (i.e., "knowledge about the phenomena associated with the subject and the conceptual ideas associated with those phenomena" [p. 74]); (b) *application* (i.e., "an ability to use and think about the new knowledge in multiple ways, as well as the opportunity to develop important skills" [p. 74]); (c) *integration* (i.e., "the ability to connect one body of knowledge with other ideas and bodies of knowledge" [p. 74]); (d) *human dimension* (i.e., "discovering how to interact more effectively with oneself and with others" [p. 74]); (e) *caring* (i.e., "the development of new interests, feelings, and values" [p. 74]); and (f) *learning how to learn* (i.e., developing the knowledge, skills, and strategies for continuing one's learning after the course is over" [p. 74]). Fink's taxonomy was used in the current study to identify the kinds of teaching and learning strategies and the feedback and assessment activities that each instructor who participated in the study utilized to support significant learning in her or his mixed research course.

The research philosophical stance for our study was what Johnson (2011) labeled as *dialectical pluralism*, referring to an epistemology that requires the researcher to incorporate multiple epistemological perspectives within the same inquiry. We believed that our dialectical research philosophical stance is compatible with Fink's (2003) model of integrated course design because this model "builds on and incorporates many ideas that already exist in the published literature on instructional deign and good teaching" (p. xiii).

Theoretical Framework

Teddlie and Tashakkori (2010) identified the following 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 2. As stated by Teddlie and Tashakkori (2010), each of these six conceptual stances "has been used (explicitly or implicitly) by groups of scholars who are practicing MMR [mixed methods research]" (p. 14).

Table 2. Teddlie and Tashakkori 's (2010) Six Conceptual Stances Associated with Mixed Research.

Conceptual Stance	Description
A-paradigmatic	Paradigms or conceptual stances are not important to read-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 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

Teaching per se represents an epistemology whereby the essence of knowing occurs during the act of teaching. Because there is a strong connection between philosophy and teaching, with epistemologies providing underlying theoretical frameworks for teaching (Kincheloe, Slattery, & Steinberg, 2000), it is likely that an instructor's research philosophy plays an important role in the pedagogical approaches used in mixed research courses. Thus, it was of interest to explore this potential link for understanding better potential learning outcomes relevant to research methodology coursework.

Method

Participants and Setting

The participants were 12 leading mixed methodologists from various institutions in the United States who were instructors of mixed research courses. They were selected via a criterion sampling scheme (Miles, Huberman, & Saldaña, 2014) due to their knowledge and skills in mixed research, which includes integration of both qualitative and quantitative research methodologies. As demonstrated by Guest, Bunce, and Johnson (2006), 12 interviews are sufficient to "understand common perceptions and experiences among a group of relatively homogeneous individuals" (p. 79). Also, as concluded by Johnson and Christensen (2010), "when greater resources are available, collective case studies of around 10 cases are common" (p. 397). Thus, our sample size of 12 instructors was deemed adequate for obtaining data saturation.

The 12 instructors comprised six women and six men, who ranged in rank from assistant professor to full professor, teaching mixed research either: site-based (i.e., face-to-face), online, or hybrid (combination of face-to-face and online) context. Using the Carnegie Classification (The Carnegie Foundation for the Advancement of Teaching, n.d.), we noted the instructors' affiliations as: institutions with very high research, institutions with high research, institutions with doctoral-level research, or institutions wherein research is not classified. With respect to the mixed research course syllabi, sample learning outcomes based on course objectives included that students would successfully:

- Understand the historical underpinnings of mixed research.
- Compare and contrast mixed research to mono-method research.
- Describe the major steps in the mixed research process.
- Evaluate several ways of collecting data in mixed research studies.
- Demonstrate ways to address legitimation in mixed research.
- Identify ethical and legal considerations involved in conducting and reporting research.

Using Teddlie and Tashakkori's (2010) typology, with respect to mixed research conceptual stances, the composition of participants was as follows: five participants could be classified as endorsing a dialectic stance, four participants could be classified as supporting the alternative paradigm stance, two participants could be classified as promoting the multiple paradigms stance, and one participant could be classified as advancing the complementary strengths stance. Thus, four of Teddlie and Tashakkori's (2010) six

Table 3. The 12 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	2	Participant MP1 Participant MP2
A-paradigmatic	0	
Substantive theory	0	

conceptual stances were represented by the 12 participants. Table 3 presents the participants and each participant's associated conceptual stance.

Instruments and Procedures

The 12 leading mixed methodologists were interviewed via one of three modes: face-to-face, telephone, or Internet virtual meeting. Regardless of mode, these interviews were audio-taped using two separate hand-held digital recorders to ensure clarity of recordings. The interviews were semi-structured in nature and consisted of open-ended questions. In addition to asking these questions, the interviewer(s) probed each participant's responses in order to obtain richer data and to facilitate both theory-generation and theory-confirmation. Participants provided information about learning outcomes via syllabi and interview responses. Approval to conduct the interviews was obtained from the Institutional Review Board at the institutions of two of the researchers who conducted this study. Samples of interview questions are as follows:

1. What types of pedagogical techniques do you believe facilitate students' learning about mixed methods? How effective do you believe they are?
2. What are the issues for instructors in designing and delivering courses that aim to develop researchers' abilities to carry out mixed methods?

The transcribed interviews underwent member checking (Lincoln & Guba, 1985) in order to maximize descriptive validity (Maxwell, 1992). Further, recognizing that the researchers were the primary research instruments (Poggenpoel & Myburgh, 2003), the two researchers who were involved in interviewing the participants underwent debriefing interviews themselves, as conceptualized by Onwuegbuzie, Leech, and Collins (2008). According to Onwuegbuzie et al. (2008), debriefing interviews 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

The present study utilized a qualitative-dominant mixed research design (Johnson, Onwuegbuzie, & Turner, 2007). As conceptualized by Johnson et al. (2007), in this study, the researchers adopted a qualitative, constructivist-poststructuralist-critical stance with respect to the research process, while, at the same time, considering the addition of quantitative research approaches in general and quantitative analyses in particular to yield value-added inferences.

Mixed Data Analysis

Being *dialectic pluralists*, the researchers utilized mixed analysis techniques - specifically, a sequential mixed analysis (Onwuegbuzie & Combs, 2010) - to address the research questions. Specifically, the qualitative analyses preceded the quantitative analyses.

Qualitative phase. A series of classical content analyses (Berelson, 1952) was used to extract the themes pertaining to each qualitative research question. The sources for naming codes and locus of typology (i.e., theme) development were literature (i.e., based on Fink [2003]) and investigative (i.e., stemming from the intellectual constructions of the researchers [Constas, 1992]) via an iterative process involving both a priori and a posteriori coding. Also, the verification component was referential (i.e., based on Fink [2003]) and 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. Further, all the participants' data were subjected to cross-case analyses (Miles et al., 2014) to determine whether the emergent themes could be disaggregated. The QDA Miner 3.2 software program (Provalis Research, 2009) was used to analyze the qualitative data.

Mixed analysis phase. In the mixed analysis phase, the codes extracted from the qualitative analyses were analyzed quantitatively. In particular, the codes extracted from the interviews were subjected to a correspondence analysis, which is a technique for conducting a mixed analysis of emergent themes (cf. Michailidis, 2007). We utilized the QDA Miner 3.2 software program (Provalis Research, 2009) to conduct the correspondence analysis. Thus, our analysis represented a form of *crossover mixed analysis* (Onwuegbuzie & Combs, 2010) because data associated with one tradition (i.e., qualitative, content

analysis) were analyzed via another tradition (i.e., quantitative analysis, correspondence analysis).

Results

In creating his taxonomy of significant learning, Fink (2003) emphasized that learning is defined in terms of change for students. As such, each of his six major areas of change contains between two and five descriptive subgoals/subcategories that yield a total of 18 subgoals. It is important to note that in his taxonomy, the significant learning goals are not hierarchical but are relational and interactive. Therefore, often times, teaching strategies might be considered in one or more categories. The following sections are organized by research question and learning goals/subgoals as they relate to teaching strategies distinguished through our findings.

Qualitative Research Question 1: What are the dominant learning goals in mixed research courses used by selected U.S.-based leading mixed methodologists?

Application. Fink (2003) defined Application, which comprises five specific subgoals (i.e., Critical Thinking, Important Skills, Practical Thinking, Creative Thinking, and Complex Projects). He established that Application is the second most common educational goal for many college instructors - second to foundational knowledge. In addition, he emphasized that Application extends beyond the idea that students are learning to use knowledge, but also incorporates the idea that application, or using foundational knowledge, includes developing: Skills, Critical Thinking, Creative Thinking, Practical Thinking, and Complex Projects. For the participants in our study, Application emerged as the dominant learning goal. Within the area of application, the subtheme of Critical Thinking was mentioned by all of the 12 participants as being integral to teaching mixed research. The subtheme of Practical Thinking was noted by 11 of the 12 participants, closely followed by Creative Thinking (10 of 12 participants) and Complex Projects (8 of 11 participants). Regarding the most frequently occurring subgoal, Critical Thinking, one participant revealed,

> And my goal is to get students to conceptually understand what a factor analysis is on one hand and a content analysis on the other hand, and how really you're doing the same thing. I think that the conceptual understanding of these similarities and their differences in methodological orientations is probably the most important thing. (Participant AP1)

The learning subgoal of Creative Thinking often included a strategy to address a student's leaning toward a specific research philosophy:

> So, they start off with very often broad and expansive or an impossible design which introduces the concept of the parameters of research designs and bounding the case. Their conceptual stance is what they bring into the class before they've

done the readings, often preferring a specific strand which sometimes limits their way of thinking about how to conduct research. (Participant AP2)

In the subtheme of practical thinking, one participant specified,

> In a mixed research study that is evolving, and qualitative research also has that dilemma, there are going to be questions that evolve as the study evolves; and as a researcher, you have to make those quick decisions as to 'what should I ask; what is appropriate to ask; what is inappropriate to ask; what to include; what not to include,' and so forth. (D1)

Integration. Fink (2003) discriminated three realms of integration: (a) Within-Course Integration, or interdisciplinary learning (i.e., students look at problems from the perspectives of two or more disciplines or perspectives within a course); (b) Between-Courses Integration (i.e., students integrate different perspectives and focus on connecting diverse people as well as diverse fields); and (c) Other Areas of Life Integration (i.e., social or work connections stemming from academic understanding). The learning goal Integration emerged as the second most dominant goal emphasized by all 12 participants. In addition, all three subthemes (Within-Course, Between-Courses, Other Areas of Life) were emphasized by participants within the theme of Integration. With respect to Within-Course Integration, one participant discerned,

> [Students] 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 - concepts are new things that are unique to mixed methods research, for example, like how you integrate. (Participant MP1)

To address the importance of Between-Course Integration, another participant explained,

> Also, I think that if you're going to have them do a proposal or do a project, [students] have to come to the class with some sort of a content area of interest. And so, you are simultaneously trying to teach the students how to do mixed methods research and also to help them develop an area that they're interested in. So, if they don't come to the course with some area that they're interested in, then it becomes sort of a hypothetical exercise. (Participant AP1)

Regarding the theme of Other Areas of Life Integration, philosophy of research appeared to help bridge concepts of mixed research embedded within either the community at-large or within the personal perspective of the individual. For example, one participant suggested,

> I think that the core - if there is a *core* idea of mixed research - is listening to multiple perspectives and believing that something greater will be gained from that. Something better will be gained by listening and respecting multiple perspectives. (Participant D2)

Further, another participant explained,

> I would talk about the integration of *thinking* that emerges from a quantitative perspective, and a qualitative perspective. But I would also put that within a framework, a larger framework. What are the underlying philosophical beliefs that guide you in your understandings about the meaning of mixed methods? (Participant AP4)

Table 4 presents the emergent six learning goals and 18 subcategories/subthemes in rank order from highest in frequency to lowest in frequency relating to the participants. As seen in Table 4, even though the learning goal of Application was a dominant theme, the subtheme of Within-Course-Integration was uncovered as the most frequently occurring overall subtheme. When comparing the percentage of overall frequency of the 18 significant learning subgoals, it should be noted that: (a) Within-Course Integration, (b) Perspectives for Understanding, and (c) Key Information were only slightly higher than were the subthemes of (a) Critical Thinking, (b) Other Areas of Life, and (c) Interacting with Others.

Table 4. Significant Learning Goals and Subtotals in Rank Order of Emphasis by Leaders in Mixed Research Courses.

Significant Learning Goal and Related Subgoals	Rank of Goal	Coding Frequency for Goal	Coding Frequency for Subgoal	% of Overall Subgoal Frequency
Application	1	106		
Critical Thinking			26	7
Important Skills			25	6
Practical Thinking			22	5
Creative Thinking			17	4
Complex Projects			16	4
Integration	2	90		
Within-Course			45	12
Other Areas of Life			27	7
Between-Courses			18	5
Foundation	3	76		
Perspectives for Understanding			39	10
Key Information			37	9
Learning How to Learn	4	44		
Inquiry Within-Course			16	4
Self-Directed Learning			14	4
How to Be a Good Student			14	4
Human Dimension	5	46		
Interacting with Others			29	7
Learning about Self			17	4
Changes in Caring	6	27		
Feelings about the Subject			3	1
Interests about the Subject			6	2
Values about the Subject			18	5

Mixed Research Question: What are the dominant learning goals in mixed research courses used by selected U.S.-based leading mixed methodologists as a function of conceptual stance?

The correspondence analysis yielded interesting results as a function of conceptual stance. Figure 3 displays the correspondence analysis and the 18 subthemes relating to each participant as a function of conceptual stance. In the correspondence analysis, the 18 subthemes and 12 participants were clustered on a horizontal axis with the following three of the six major learning goals, specifically identified through their related subgoals, which were positioned mostly on the far left: (a) Learning How to Learn (i.e., Inquiry Within-Course, Self-Directed Learning, How to be a Good Student), (b) Human Dimensions (i.., Interacting with Others, Learning about Self), and (c) Changes in Caring (i.e., Feelings about the Subject, Interests about the Subject, Values about the Subject). On the far right of the continuum of the horizontal axis, two of three other learning goals (and related subgoals) are positioned: Application (i.e., Critical Thinking, Practical Thinking, Creative Thinking) and Foundation (i.e., Perspectives, Key Information). However, the learning goal Integration spans across the continuum from Inquiry Within-Course to Other Areas of Life. On the vertical axis, there were no apparent significant goals that clustered; yet, a few isolated subgoals appeared in the upper quadrants (i.e., Quadrant 1 and Quadrant 2): (a) Learning About Self (i.e., Human Dimension), (b) Critical Thinking (i.e., Application), and (c) Values about the Subject (i.e., Caring). Further, the following subgoals are positioned in the lower quadrants (i.e., Quadrant 3 and Quadrant 4): (a) Creative Thinking (i.e., Application) and (b) Feelings about the Subject (i.e., Caring).

In addition, in Figure 3, participants are identified as they are positioned in four quadrants and with respect to the 18 subgoals. Specifically, two participants are positioned in Quadrant 1, two participants are located in Quadrant 2, four participants are positioned in Quadrant 3, and four participants are located in Quadrant 4. Similar to the results of the content analysis, the subgoals that were clustered closest to the origin (i.e., intersecting axes) as central themes among participants in this area were as follows: (a) Key Information, (b) Perspectives, (c) Important Skills, and (d) Complex Projects.

Upon closer examination of Figure 3, it can be seen that two of the three learning goals (i.e., Application [Critical Thinking, Practical Thinking], and Foundation [Key Information, Perspectives]) that were positioned to the right of the vertical axis are learning goals that pertain to what might be considered the *depth* of teaching. Conversely, the subgoals relating to the other three learning goals (i.e., Learning How to Learn [Inquiry Within-Course, Self-Directed Learning, How to Be a Good Student], Human Dimension [Interacting with Others, Learning about Self], and Changes in Caring [Feelings about the Subject, Interests about the Subject, Values about the Subject]), which might be considered a type of *breadth* in teaching, appeared only on the left of the spectrum. The learning goal Integration represented both depth and breadth. Depicted in Figure 3, the two participants who held the Multiple Paradigms conceptual stance (i.e., MP1 and MP2) are situated, respectively, in Quadrant 2 and Quadrant 4 (i.e., depth in a course). Further,
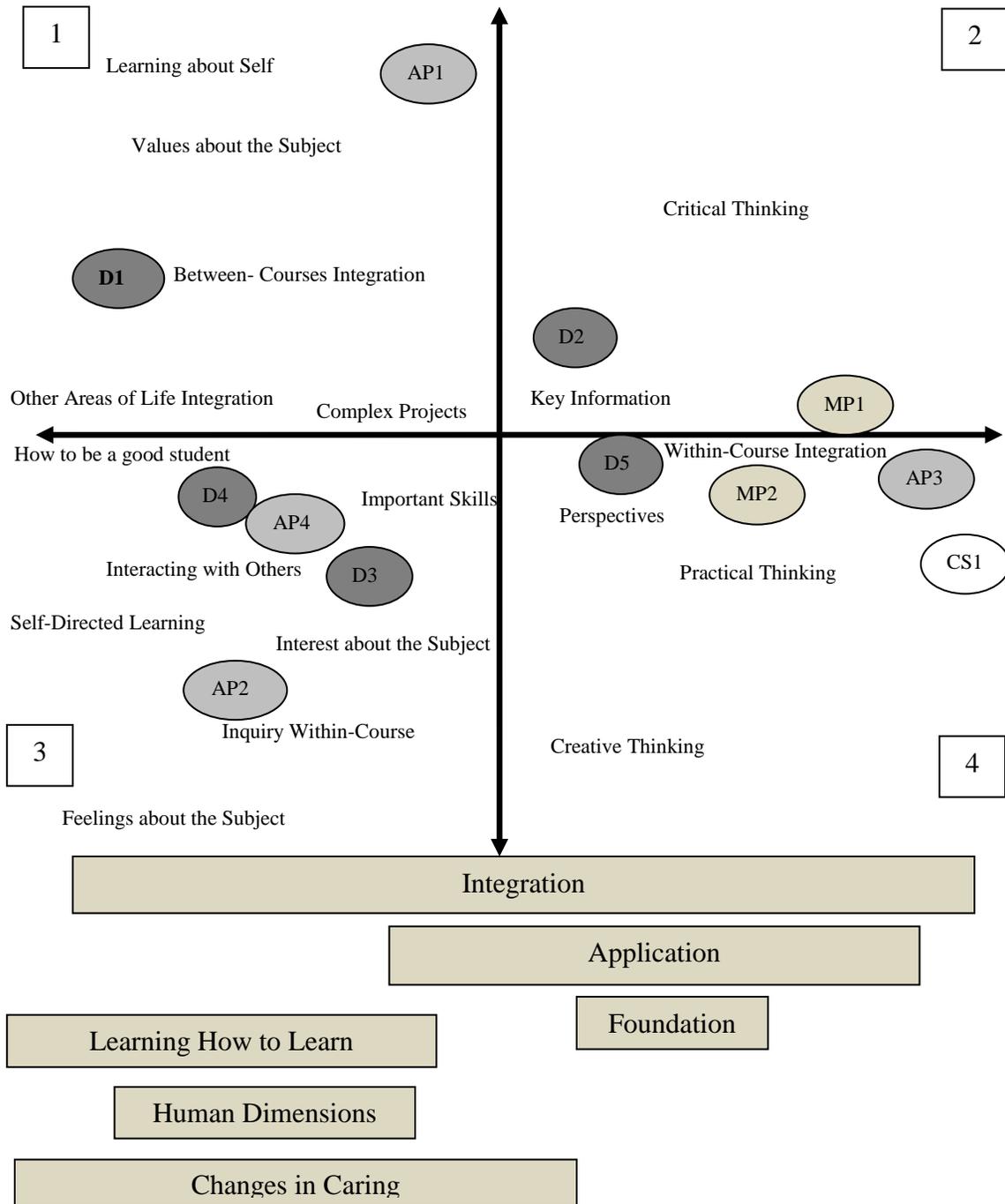
Figure 3. The 18 subgoals related to six learning goals (Fink, 2003) and participants by conceptual stance. The six significant learning goals are presented as they relate to the 18 subgoals on the horizontal continuum. Also, the quadrants are numbered 1-4.

participants 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. Also, the one participant with the Complementary Strengths stance (CS1) is situated farthest right in Quadrant 4 and closest to one of the AP participants, specifically Participant AP3. Interestingly, both of these participants viewed the integration of course content quite uniquely. Participant AP3 emphasized in both his/her interview and member checking (by inserting an underline under the word research) the importance of presenting a mixed methods course as a *research* course, by stating the following:

> I don't call it a mixed methods course, or mixed methods research. It is <u>research.</u>
> It is the way it's supposed to be, rather than be fragmented. Everything is together.
> Quant is integrated in many respects. When it comes to design for example, for
> experimental design, we have both qualitative kind of data, quantitative kinds of
> examples, questions, etc. All the way to ethnography, it's the same as we go
> through designs. It's the same as much as possible–they're integrated.

Also different from other participants, Participant AP2 explained how philosophy frames perspectives that are important to bridge personal beliefs and integration. This participant declared,

> Combining methodological traditions in mixed methods research now includes
> mixing methodologies within a particular conceptual stance. What I mean by that
> is, I'm seeing and encouraging students to consider conceiving of mixed methods
> as more than qualitative and quantitative research, it can be a mixture of para-
> digms, conceptual stances, or mixing methodologies within a particular traditional
> research stance such as in the qualitative domain where combining things like
> transformative or critical research stances with case study design is a mixture.

Finally, Participant CS1, who held a different conceptual stance from all other participants, revealed a unique perspective of teaching mixed research that was different from all other participants:

> I use the term mixed methods differently from some others. Mixed methods con-
> tain one complete method plus at least one other strategy. And if you're using two
> complete methods, I refer to that as 'multiple methods.'

As can be seen in the correspondence plot, other differences with respect to the central significant learning goals can be distinguished within Quadrant 1: D1 and AP1. Both of these participants addressed bridging content with culture. As articulated by Participant D1,

> I want to create a culture of research and a phrase I like to use as well is a 'culture
> of open-mindedness,' which I unfortunately don't see enough. With open-
> mindedness, meaning, I am willing to learn anything? I may not use it down the
> road, but I am willing to learn about software, and if I don't use it, great. But at

> least if I don't use it, it is not out of ignorance; it is out of philosophy, or because it doesn't help me address my research question and so forth.

It was discovered that the majority of the participants (i.e., 9 of 12) mentioned that students should have a thorough grounding in both quantitative and qualitative research skills before undertaking a course in mixed research. One participant reasoned,

> It's extremely important to me for them to fully understand the strong version of qualitative research and the strong version of quantitative research. What I mean by that is that it includes epistemological and ontological viewpoints, positions… in addition to the methods. So, I don't want anyone to argue that I didn't really teach them qualitative or say I didn't really teach quantitative or whatever it might be. So, after I've done that, now I'm really ready to teach them about mixed research. (Participant D2)

Conversely, Participant D1 surmised,

> I think students need to have a thorough grounding in research, not quan not qual, but in research, because there are core things that cut across quantitative and qualitative research, we tend to focus on differences, and that is always a frustration of mine, rather than focusing on commonalities.

Thus, to distinguish further the similarities and differences, a partially ordered matrix (Miles et al., 2014) was created whereby we displayed conceptual stance, whether or not the participant mentioned the need to have a thorough understanding of quantitative and qualitative research before taking the course, and the dominant within-case participant learning goal(s). In addition, we summarized the overall impression of each within-case with a unique overall identified characteristic, or focus. Table 5 illustrates the findings pertaining to (a) the dominant learning goal(s), (b) view regarding whether a thorough grounding is needed in quantitative/qualitative research methods, and (c) overall characteristic.

Qualitative Research Question 2: What are similarities and differences in pedagogical strategies used by selected U.S.-based leading mixed methodologists?

Teaching strategies implemented by the participants included a variety of teaching tools for addressing the complexity of a mixed research course. The use of current published literature in the area of mixed research was a primary means to broaden students' understanding of mixed research as a process. In addition, the use of literature was used to address Critical Thinking. In fact, some participants utilized the reading of what they deemed as poorly designed studies versus what they considered as well-designed studies to address areas such as sampling procedures, data collection, types of data, and integration. One participant (D2) described his/her use of readings:

> I would ask the student to find mixed research articles - empirical studies discussing [one area of interest such as] bullying. Then, I ask him/her to critique these

Table 5. Participants by Philosophical Stance, Dominant Learning Goal, Knowledge of Quan/Qual Perspective, and Overall Characteristic.

Participant by Philosophical Stance	Dominant Learning Goal	Knowledge necessity of Quan/Qual	Overall Characteristic
Dialectical 1	Perspectives/ Interacting with others	No	Connected
Dialectical 2	Key information	Yes	Relevant
Dialectical 3	Key information/ Within-course/ Interacting with others	Yes	Systematic and Integrated
Dialectical 4	Key information/Other areas of life	Yes	Structured and Pertinent
Dialectical 5	Key Information/ Perspectives/ Within-course	Yes	Significant and Purposeful
Alternative Paradigm 1	Change in values/ learning about self	Yes	Reflective Understanding
Alternative Paradigm 2	Perspectives	No	Philosophical
Alternative Paradigm 3	Perspectives/ Within-course	No	Innovative
Alternative Paradigm 4	Perspectives/ Other areas of life	Yes	Cooperative and Collective
Multiple Paradigms 1	Within-course/ Critical thinking	Yes	Customized
Multiple Paradigms 2	Key information/ Within-course	Yes	In-Depth
Complementary Strengths Stance	Within-course/ Practical skills	Yes	Conceptual

articles in order to get an understanding of how different researchers are interpreting this topic and how they're applying different aspects of the mixed research process in the critiqued studies.

To address one strategy in teaching mixed research design, another participant summarized,

> Well, here's the key, I explain to students that once you have your question, you then figure out what design you're going to use. There are some good typology and designs …. And then that's going to inform a lot of phases of your project. You can now draw a visual picture of your procedures: how you're going to treat your data; where you're going to mix your data; how you think about validity; and how you think about ethical issues. So, *the design* sets the center of my thinking about a good mixed methods course. Now that's my particular orientation. (Participant MP2)

Similar to the results of the correspondence analysis whereby participants clustered together in depth and breadth, participants who noted the importance of quantitative and qualitative understanding before taking a mixed research course also surmised how terminology was core to understanding mixed research, as exemplified by the following statement:

> And I think some of the issues that students have is learning the terminology, applying it appropriately, recognizing which concepts to use ... and how to construct dialog whether it be written or orally for communicating with others about their ideas. (Participant D3)

A frequent concept to address in teaching mixed research was to move students into the creative realm of thinking about research. For example, Participant AP1 concluded,

> I think the power of mixed methods research is that it can change the way that people conceptualize 'what normal science is.' They can bring to that the richness of qualitative data and how the quantitative and qualitative data are not antithetical to one another; in fact, they are just opposite sides of the same page … The data are interchangeable. And so I think what the teacher or the professor has to do with teaching a mixed methods course is get people beyond the dichotomization to a point where they're simply interested in what the research problem is and how they can approach that research problem, from a variety of different ways.

In addition, one central teaching strategy addressed by Participant D1 was to integrate learning via team-teaching with a doctoral student. He/she explained,

> I try where possible to get a student, a former student, if I can, to come into the class and either give some pointers at the beginning of the course, if that is all they have the time for, but ideally they team-teach the course with me so that students can see an example of how I try to encourage life-long researchers. They can interact with the students, and so the students can have an automatic role model via this student, who is *still a student*.

Table 6 lists the various strategies in the voices of participants for the teaching and learning of mixed research and the domain that each strategy addressed. Similar to Fink's (2003) description that all learning goals are integrative and iterative, as depicted through the examples in Table 6, strategies in teaching mixed research address multiple learning goals. For example, foundational elements in mixed research such as design, analysis, and development of a study might be addressed through Critical Thinking, Practical Thinking, and Between-Courses Integration. In addition, participants addressed techniques for developing student skills such as writing research and integrating ethics throughout a mixed research course that might be considered as being part of the significant learning goals of Learning How to Learn, Human Dimension, and Foundation.

To summarize further the findings pertaining to Qualitative Research Question 2, we created a matrix of instructional practices espoused by leading mixed methodologists.

Table 6. Techniques Used to Facilitate Important Skills and Domains Pertaining to the Applications of Learning Goals.

Subtheme	Domain Addressed	Example
Important Skills	Design	When they are through with their [project], they have learned to logically think, plan and conduct research. They also are much more competent consumers of information.
Important Skills	Analysis	In reference to the quantitative [approach], in my class, I only focus on descriptive analyses I tend to keep it at descriptive level only, to allow as many students [in the course] to be able to interact with the dataset.
Important Skills	Analysis	The analyses are descriptive analyses. They don't do any conversion at this point, [they do] descriptive analyses, and then they augment it [this analysis] by a content analysis.
Important Skills	Ethics	I should do more…as Joe Maxwell has said many times: the practice is so much more complicated than the theory. And, you know, the steps should be iterative. Not linear and it shouldn't be. They should be, back and forth and around and around.
Important Skills	Analysis	I never expect them to collect a lot of data, but they have to collect some data ; their data sets don't have to be huge and, most of the time they don't have enough power to find significance, and things like that, but I'm not that worried about that. I'm more worried about their going through the motions of what they will be doing in a study.
Important Skills	Design	It's, for you as a teacher to use as examples. Present your own work is a tremendous boost, as you can describe the decisions, the compromises and the problems and how they were overcome. It is one thing to have a perfect design, another to be able to execute it in the research setting.
Important Skills	Writing	They will get feedback on their ability to write in a technical way, which would include the words that they use, include grammar, include APA, and so forth, with a goal that once they have done that a couple of times, they have really started to get a feel for how to write up the results of a research study.
Important Skills	Analysis	They'll be given a data set and I give them some research questions that are mixed and ask them to analyze the data and write it up in a way that would appear like it would in a journal.
Important Skills	Analysis	I think one of the things that really helps, and there is a barrier associated with that, in my present institution, is the use of software…like QDA Miner.

Figures 4, 5, 6, and 7 each present a conceptually ordered matrix, specifically a content-analytic summary table (Miles et al., 2014) to illustrate: (a) activities for teaching mixed research (Figure 4); (b) content important to include in mixed research courses (Figure 5); (c) design components to include in teaching mixed research (Figure 6); and (d) ethics

specific to mixed research (Figure 7). It should be noted that just because an instructional practice is not identified by a participant from one conceptual stance does not necessarily mean that it is not used. However, this strategy was foremost on the mind(s) of those who stated it.

Discussion

Due to the fact that research methodology courses often involve some level of application and involve interacting with other disciplines, it is not surprising that our findings unveiled the learning goals of application and integration as being highly emphasized by these instructors of mixed research. Importantly, due to the complex nature of *mixed research* (i.e., involving "mix[ing] or combin[ing] quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study"; Johnson & Onwuegbuzie, 2004, p. 17), leaders in the field also emphasized the importance of critical thinking and understanding various perspectives almost as equally as they emphasized the importance of the subgoals pertaining to key information, application, and integration.

The finding that the AP participants were located far away from each other in general highlights the way that overall philosophy of the instructor might impact pedagogy. The uniting element of this stance is the belief that mixed research should be driven by a different paradigm from those paradigms associated with quantitative (e.g., postpositivism) and qualitative (e.g., social constructionism, critical theory) research traditions. Therefore, it is not surprising that these participants did not appear close to each other on our correspondence analysis plot. For example, the transformative emancipatory stance (cf. Mertens, 2010) is very different to various forms of pragmatism (cf. Biesta, 2010; Johnson et al., 2007). Thus, it might not be surprising that they would fall into different quadrants pertaining to learning goals. In fact, in Quadrant 3 of the correspondence analysis plot, it can be seen that the humanistic pieces of teaching, as we identified as breadth, is associated with the transformative emancipatory conceptual stance. Conversely, a pragmatist who is considered as representing the Alternative Paradigm stance might realistically align with the depth quadrants that emphasize in-depth tools that tend to work when conducting research. This finding provides compelling evidence of the role that a teacher's research philosophy plays in the formation and utilization of pedagogical approaches in mixed research courses.

Regarding the two Multiple Paradigm stance participants, our findings offer some insight into the relationship between this conceptual stance and significant learning goals. According to the Multiple Paradigm stance, a single paradigm is not appropriate for all mixed research designs and that paradigms can be *tailored to fit* the research question and research design, In order to do this, a student would need a very in-depth understanding of multiple research paradigms before determining a best fit. Thus, it is not surprising that these participants fell within the right quadrants, or what we described as representing depth in the course content.

Similarly, the participants who held beliefs associated with the Dialectic stance, with the exception of one participant, tended to fall near the origin of the plot and around the

Activities for Learning Mixed Research	Conceptual Stance of Participant(s)	Relevant Significant Learning Goals
Discussion of research traditions and methodologies	All	Within-Course
Structure thinking before implementing the study	All	Critical Thinking
Use a model such as the 13-step (Collins, Onwuegbuzie, & Sutton, 2006)	DP	Practical Thinking
Each week, use published readings to interpret each step of research	All	Critical Thinking
First session, introduce or compose a definition of mixed method research	Most	Key Information
Provide an overview of quantitative and qualitative research	Most	Key Information
Be sure to balance: philosophical, conceptual, and applied components	All	Perspectives
Integrate the course as much as possible from the beginning: historical, philosophical, worldview issues, sampling, and data collection	Most	Within-Course Integration
Provide a variety of readings to address philosophical issues	All	Perspectives
Include a reflective piece such as a reflective journal	DP	Learning about Self

Figure 4. A content-analytic summary table of instructional practices of U.S.-based leading methodologists for addressing class structure specific to mixed research. In the column that notes the conceptual stance of participant(s), if more than one conceptual stance-participant noted the instructional practice, it is labeled as *most*. If all three of the conceptual stance-participants noted the instructional practice, it is labeled as *all*.

Practices for Addressing Content Specific to Mixed Research	Conceptual Stance of Participant(s)	Relevant Significant Learning Goals
Emphasize design and validity issues, or as Jennifer Greene might say is a *good mental model*	AP	Perspectives
Teach more than one conceptual stance	All	Perspectives
Bring students to a deeper understanding of how you bring methods together	All	Practical Thinking
Incorporate a type of *street smart ability* for students that they make clear all components of the study	AP	Other Areas of Life
Get students to a point to recognize the overall value of mixing	All	Values about the Subject
Incorporate conceptual understandings for analyses, such as what a factor analysis is versus a constant comparison analysis—as being parallel	DP	Between-Courses Integration
Help students become *methodologically eclectic*	AP	Changes in Interests
Use the *Journal of Mixed Methods Research* for examples of research by experienced researchers	Most	Critical Thinking
Incorporate the *Sage Handbook of Mixed Methods Research* into readings	All	Critical Thinking
Use a rubric to help guide students to evaluate readings	DP	Practical Thinking
Have students draw the design of published articles	CSS	Creative Thinking
If textbooks present mixed research in dichotomies, assign chapters such as 1 and 13 at the same time	AP	Within-Course Integration
Remember that mixed research terms are new to students such as ontology, epistemology. Simplify these	Most	Key Information

Figure 5. A content-analytic summary table of instructional practices of U.S.-based leading methodologists for content important to include in mixed research courses. In the column that notes the conceptual stance of participant(s), if more than one conceptual stance-participant noted the instructional practice, it is labeled as *most*. If all three of the conceptual stance-participants noted the instructional practice, it is labeled as *all*.

Practices for Addressing Design Components in Mixed Research	Conceptual Stance of Participant(s)	Relevant Significant Learning Goals
Recognize sequence: a credible database, an audit trail that is evidence-based, integrate the findings	Most	Practical Thinking
Clear confusion regarding sampling: what is a population versus a probabilistic sample?	All	Key Information
Experience collecting data, especially qualitative to compare with other data collection experiences in quantitative	All	Within-Course Integration
Incorporate legitimation criteria, such as Onwuegbuzie and Johnson (2006)	DP	Foundation
Use diagrams throughout every stage of the research design	DP	Creative Thinking
Begin with an overarching problem and design a complementary set of quantitative or qualitative questions, then integrate the findings at the end	DP	Other Areas of Life Integration
Demonstrate how to follow through on research	All	Values about the Subject
Help students decide mixing points, where they will mix the two approaches	Most	Critical Thinking
Bring to students' awareness that mixed research is a hot topic, but also requires a greater knowledge and greater time commitment	AP	Learning about Self

Figure 6. A content-analytic summary table of instructional practices of U.S.-based leading methodologists for design components to include in mixed research courses. In the column that notes the conceptual stance of participant(s), if more than one conceptual stance-participant noted the instructional practice, it is labeled as *most*. If all three of the conceptual stance-participants noted the instructional practice, it is labeled as *all*.

Practices for Addressing Ethics Specific to Mixed Research	Conceptual Stance of Participant(s)	Relevant Significant Learning Goals
Incorporating how to address Institutional Review Board (IRB) with both quantitative and especially qualitative data collection: What is important to note?	All	Values about the Subject
How ethics flow through data collection, data analysis, the write-up stage pertaining to the mixed design	All	Complex Projects/Critical Thinking
Using the mixed research perspective for inspecting a position on ethics: examine what you value, examine the different ways to get there. It is an examination of the means and the end.	Most	Learning about Self/Values about the Subject
Examine the mixed research perspective that says to listen to different and multiple perspectives and construct the most ethically justified position of these viewpoints	Most	Self-Directed Learning
Use role plays to communicate mixed methods to an IRB representative	AP	Creative Thinking
Decide if consent is quantitatively driven or qualitatively driven	DP	Critical Thinking
Incorporate the voices of participants and know that the researcher voice is always present	AP	Interests about the Subject
Utilize Guba and Lincoln's (1989) authenticity criteria to strive not only to do no harm, but moreover to do good	Most	Interacting with Others
Inspect Mertens's (2010) transformative-emancipatory stance to learn how to make a difference for your participants	Most	Values about the Subject
Discuss responsibilities to gatekeepers, stakeholders, and also the people of whom you promise things: these are the same issues that are noted in ethnography and anthropology	Most	Interacting with Others

Figure 7. A content-analytic summary table of instructional practices of U.S.-based leading methodologists for ethics to include in mixed research courses. In the column that notes the conceptual stance of participant(s), if more than one conceptual stance- participant noted the instructional practice, it is labeled as *most*. If all three of the conceptual stance-participants noted the instructional practice, it is labeled as *all*.

central uniting learning goals highlighted by Fink (2003) as being the most common focus of most college instructors: foundational knowledge and application of that knowledge. Finally, the participant who adhered to a Complementary Strengths stance fell furthest within the depth quadrant, which also provides some evidence that this stance might be quite unique. Regardless, a strong research philosophy, which, Collins, Onwuegbuzie, and Johnson (2012) referred to as "philosophical clarity" (p. 854), seems to be interrelated to pedagogical strategies for these mixed research instructors.

Potential limitations of our study included descriptive credibility, such as the academic time of year (October through November) because instructors might have been overly cognizant of one group of students versus prior groups of students. In addition, as leaders in the field of mixed methodology, participants might have experienced reactivity to the study and a heightened enthusiasm for characteristics of mixed research. Trustworthiness was addressed through member-checking and the use of original language of participants. In addition, the primary researchers addressed reflexivity through debriefing interviews as suggested by Frels and Onwuegbuzie (2012) in the data collection, data analysis, and data reporting stages of the study.

Implications

As distinguished by Fink (2003), good courses include "teachers who care - about the subject, their students, and about teaching and learning" (p. 28). Without doubt, as U.S.-based leaders in the field of mixed research, it is clear that the participants who engaged in our study care about the future of mixed research and successful learning by their students. As passionate leaders in the field, the 12 participants in our study, on average, had secured (a) 160.33 works published in the literature; (b) at least 5,625.17 citations for their works; and (c) a h-index of 23.08, indicating that, on average, at least 23 of their works had been cited on at least 23 occasions (Hirsch, 2005). Although our study recognized pedagogy and concepts specific to mixed research (e.g., data collection methods, legitimation, ethics), it is important to note some of the additional overall *developmental* characteristics that emerged as being important to participants in our study. These areas revealed the importance of expanding perspectives, critical thinking skills, and other learning goals outlined by Fink (2003) for integrated course design.

For addressing the research questions and to recognize the teaching strategies used by selected U.S.-based leading mixed methodologists, it was not our intention to generalize beyond our study. However, due to the fact that the concepts in general research methodology courses are the building blocks for mixed research coursework, a naturalistic generalization (Stake & Trumbull, 1982) might be considered by instructors of social and educational research methodology courses in multiple fields of study. Because mixed research methodology - by its very nature - is intended to expand possibilities for addressing particular goals and objectives not possible through the use of mono-methods alone, the associated pedagogical strategies might reveal ways to approach multiple and complex research concepts.

The nature of mixed research is naturally integrative; thus, it is not surprising that teaching strategies used by mixed research instructors align strongly with integrated course design. It is our hope that by recognizing that these goals and their similarities and differences are influenced by philosophical/conceptual stance, mixed research instructors and general research methodology instructors might reflect and re-evaluate ways in which philosophy, pedagogical strategies, and learning goals are reflected in course design. Therefore, one implication for mixed research course instructors might be to refer to Earley's (2007) recommendation of aligning learning goals with course objectives using a *reflective* practice that examines the learning process for ongoing course development. For example, instructors might reflect on Fink's (2003) goals and assess their efforts in addressing student researcher identity - intentionally addressing the human dimension goal.

Another implication emerging from our study is the idea that if students are to navigate successfully through a course in mixed research, instructors might initiate dialogue aimed at differentiating concepts from quantitative and qualitative research traditions in an active, integrative process specific to their fields of study. Further, instructors of research methodology courses in general (e.g., educational research) might reflect on ways to adopt mixed research concepts and philosophical diversity that might enhance creative thinking for students. As revealed by the findings for practical techniques in teaching mixed research (see Figures 4-7), many of the learning outcomes appear to overlap with concepts presented in general research methodology courses, such as quantitative sampling techniques, data analysis techniques, and ethical considerations.

Due to the fact that our study aligned philosophical stance with teaching approaches, it was important for us to examine how our stated conceptual stance of dialectical pluralism impacted the interpretation of our findings. Dialectical pluralism is a stance whereby the researcher listens carefully and interprets the values, ideas, and concepts of multiple ontologies, epistemologies, methodologies that include stakeholder and local perspectives (Johnson, McGowan, & Turner, 2011). Simply put, our dialectical pluralist stance guided the way that we situated the multiple perspectives of participants and focused on *diversity* in approach of teaching strategies in mixed research courses.

In closing, the current study continues the dialogue called for by Creswell et al. (2003), Earley (2007), and Onwuegbuzie et al. (2011) to examine the rapidly developing field of mixed research for the next generation of researchers who are influenced by pedagogy and teaching approach. The U.S.-based leaders of mixed research who participated in our study delineated concepts, strategies, and course design elements specific to mixed research that they deemed important for teaching and learning mixed research. We encourage future researchers to continue our line of inquiry so that instructors of mixed and general research methodology courses alike might better understand the impact of philosophical/conceptual stance, pedagogical strategies, and integration of learning goals for student development.

References

Bazeley, P. (2003). Teaching mixed methods. *Qualitative Research Journal 3*, 117-126. Retrieved from http://researchsupport.com.au/TeachingMM.pdf

Baran, M. (2010). Teaching multimethodology research courses to doctoral students. *International Journal of Multiple Research Approaches, 4*, 19-27.

Berelson, B. (1952). *Content analysis in communicative research.* New York, NY: Free Press.

Biesta, G. (2010). Pragmatism and the philosophical foundations of mixed methods research. In A. Tashakkori & C. Teddlie (Eds.), *SAGE handbook of mixed methods in social and behavioral research* (2nd ed., pp. 95-117). Thousand Oaks, CA: Sage.

Christ, T. W. (2009). Designing, teaching and evaluating two complementary mixed methods research courses. *Journal of Mixed Methods Research, 3*, 292-325. doi:10.1177/1558689809341796

Christ, T. W. (2010) Teaching mixed methods and action research: Pedagogical, practical, and evaluative considerations. In A. Tashakkori & C. Teddlie (Eds.) *SAGE handbook of mixed methods in social and behavioral research* (2nd ed., pp. 643-676). Thousand Oaks, CA: Sage.

Collins, K. M. T. (2010). Introduction: Crafting significant learning experiences in the context of teaching mixed methodologies. *International Journal of Multiple Research Approaches, 4*, 6-8.

Collins, K. M. T., Onwuegbuzie, A. J., & Johnson, R. B. (2012). Securing a place at the table: Introducing legitimation criteria for the conduct of mixed research. *American Behavioral Scientist, 56*, 849-865. doi:10.1177/0002764211433799

Constas, M. A. (1992). Qualitative data analysis as a public event: The documentation of category development procedures. *American Educational Research Journal, 29*, 253–266.

Coronel Llamas, J., & Boza, A. (2010). Teaching research methods for doctoral students in education: Learning to enquire in the university. *International Journal of Social Research Methodology, 14,* 77-90.

Creswell, J. W., Tashakkori, A., Jensen, K. D., & Shapley, K. L. (2003) Teaching mixed methods research: Practices, dilemmas, and challenges. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 619-637). Thousand Oaks, CA: Sage.

Earley, M. A. (2007). Developing a syllabus for a mixed-methods research course. *International Journal of Social Research Methodology 10*, 145-162. doi:10.1080/13645570701334118

Fink, L. D. (2003). *Creating significant learning experiences in college classrooms.* San Francisco, CA: Jossey-Bass.

Frels, R. K., & Onwuegbuzie, A. J. (2012). Interviewing the interpretive researcher: An impressionist tale. *The Qualitative Report, 17*(Art. 60), 1-27. Retrieved from http://www.nova.edu/ssss/QR/QR17/frels.pdf

Frels, R. K., Onwuegbuzie, A. J., Leech, N., & Collins, K. M. T. (2012). Challenges to teaching mixed research courses. *The Journal of Effective Teaching, 12*(2), 23-44.

Greene, J. C. (2010). Foreword: Beginning the conversation. *International Journal of Multiple Research Approaches, 4*, 2-5.

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability, *Field Methods, 18*, 59-82.

Hansson, J. (2010). Program implementation in health services. *International Journal of Multiple Research Approaches, 4*, 40-48.

Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. *Proceedings of the National Academy of Sciences*, *102*(46), 16569-16572.

Ivankova, N. V. (2010). Teaching and learning mixed methods research in computer-mediated environment: Challenges and rewards. *International Journal of Multiple Research Approaches, 4*, 49-65.

Ivankova, N. V., & Kawamura, Y. (2010). Emerging trends in the utilization of integrated designs in the social, behavioral, and health sciences. In A. Tashakkori & C. Teddlie (Eds.), *SAGE handbook of mixed methods in social and behavioral research* (2nd ed., pp. 581-611). Thousand Oaks, CA: Sage.

Johnson, R. B. (2011). Dialectical pluralism: A metaparadigm to help us hear and "combine" our valued differences. In S. N. Hesse-Biber (Chair), *Addressing the Credibility of Evidence in Mixed Methods Research: Questions, Issues and Research Strategies.* Plenary conducted at the meeting of Seventh International Congress of Qualitative Inquiry, University of Illinois at Urbana-Champaign.

Johnson, R. B., & Christensen, L. (2010)*. Educational research: Quantitative, qualitative, and mixed approaches* (4th ed.). Thousand Oaks, CA: Sage.

Johnson, R. B., McGowan, M. W., & Turner, L. A. (2011). Grounded theory in practice: Is it inherently a mixed method? *Research in the Schools, 17*(2), 65-78.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, *33*(7), 14-26.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, *1,* 112-133.

Kincheloe, J. L., Slattery, P., & Steinberg, S. R. (2000). *Contextualizing teaching: Introduction to education and educational foundations*. New York, NY: Addison Wesley Longman.

Leech, N. L., & Onwuegbuzie A. J. (2010). Epilogue: The journey: From where we started to where we hope to go. *International Journal of Multiple Research Approaches, 4*, 73-88.

Leech, N. L., Onwuegbuzie A. J., Hansson, T., & Robinson, P. (2010). Special issue on "Teaching mixed methodologies." *International Journal of Multiple Research Approaches, 4*(1). Retrieved from http://mra.e-contentmanagement.com/archives/vol/4/issue/1/teaching-mixed-methodologies

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry.* Beverly Hills, CA: Sage.

Maxwell, J. A. (1992). Understanding and validity in qualitative research. *Harvard Educational Review, 62*, 279-299.

Mertens, D. M. (2010). Philosophy in mixed methods teaching: The transformative paradigm as illustration. *International Journal of Multiple Research Approaches, 4*, 9-18.

Michailidis, G. (2007). Correspondence analysis. In N. J. Salkind (Ed.), *Encyclopedia of measurement and statistics* (pp. 191-194). Thousand Oaks, CA: Sage.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Thousand Oaks, CA: Sage.

Niglas, K. (2007). Introducing the qualitative-quantitative continuum: An alternative view of teaching research methods courses. In M. Murtonen, J. Rautopuro, & P. Vaisanen (Eds.), *Learning and teaching of research methods at university* (pp. 185-203). Turku, Finland: Finnish Educational Research Association.

Onwuegbuzie, A. J., & Combs, J. P. (2010). *Emergent data analysis techniques in mixed methods research: A synthesis.* In A. Tashakkori & C. Teddlie (Eds.), *SAGE handbook of mixed methods in social and behavioral research* (2nd ed., pp. 397-430)*.* Thousand Oaks, CA: Sage.

Onwuegbuzie, A. J., Frels, R. K., Leech, N. L., & Collins, K. M. T. (2011). A mixed research study of pedagogical approaches and student learning in mixed research courses. *International Journal of Multiple Research Approaches*, *5*, 169-202.

Onwuegbuzie, A. J., & Leech, N. L. (2005). Taking the "Q" out of research: Teaching research methodology courses without the divide between quantitative and qualitative paradigms. *Quality & Quantity: International Journal of Methodology, 39*, 267-296*.*

Onwuegbuzie, A. J., Leech, N. L., & Collins, K. M. T. (2008). Interviewing the interpretive researcher: A method for addressing the crises of representation, legitimation, and praxis. *International Journal of Qualitative Methods*, *7*, 1-17.

Onwuegbuzie, A. J., Leech, N. L., Murtonen, M., & Tähtinen, J. (2010). Utilizing mixed methods in teaching environments to reduce statistics anxiety. *International Journal of Multiple Research Approaches, 4*, 28-39.

Poggenpoel, M., & Myburgh, S. (2003). The researcher as research instrument in educational research: A possible threat to trustworthiness? *Education, 124*, 418-421.

Provalis Research. (2009). *QDA Miner 3.2.* User's guide. Montreal, QC, Canada: Author.

Robinson, P. (2010). Conclusion: On hammers, nails, and building sites – Teaching mixed methods. *International Journal of Multiple Research Approaches, 4*, 66-72.

Siegel, S., & Castellan, J. N. (1988). *Nonparametric statistics for the behavioural sciences*. New York, NY: McGraw-Hill.

Stake, R. E. (2005). Qualitative case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (3rd ed., pp. 443-466). Thousand Oaks, CA: Sage.

Stake, R. E., & Trumbull, D. J. (1982). Naturalistic generalizations. *Review Journal of Philosophy and Social Science, 7*, 3-12.

Tashakkori, A., & Teddlie, C. (2003a). *Handbook of mixed methods in social and behavioral research*. Thousand Oaks, CA: Sage.

Tashakkori, A., & Teddlie, C. (2003b). Issues and dilemmas in teaching research methods courses in social and behavioral sciences: U.S. perspective. *International Journal of Social Research Methodology, 6*, 61-77. doi:10.1080/13645570305055

Teddlie, C., & Tashakkori, A. (2010). Overview of contemporary issues in mixed methods research. In A. Tashakkori & C. Teddlie (Eds.), *SAGE handbook of mixed methods in social and behavioral research* (2nd ed., pp. 1-41). Thousand Oaks, CA: Sage.

The Carnegie Foundation for the Advancement of Teaching. (n.d.). Retrieved from http://classifications.carnegiefoundation.org/lookup_listings/institution.php