Expanding the scope of mixed methods research in applied linguistics

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Introduction

In their critique of mixed methods research (MMR), Symonds and Gorard (2010) fantasized about the death of mixed methods and rebirth of research from its ashes. However, the exponential growth in mixed methods studies shows that MMR is alive and well, and expanding. Interestingly, a view has been put forward to claim that the practice of MMR is nothing new (see Fetters, 2015) and has a long history, demonstrating the idea that MMR “is paradoxically both new and old” (Tashakkori & Teddlie, 2010) – i.e., new with respect to philosophical debates and theoretical and methodological developments and old in terms of practice.

A developing approach in applied linguistics, MMR has been utilized in a variety of studies in the field. The prevalence of MMR in education, the recently published work on the use of MMR in applied linguistics (e.g., Hashemi, 2012; Hashemi & Babaii, 2013; Hashemi & Gohari Moghaddam, 2019; Riazi & Candlin, 2014), the emerging editorial policies of the leading journals on the use of MMR (e.g., see the author guidelines in The Modern Language Journal) and the versatility of MMR have created a strategic possibility for researchers to think of a wider range of methodological options available to them in light of integrating qualitative and quantitative approaches.

The advances in MMR in the social, behavioral, health, and human sciences, particularly in such disciplines as education, evaluation, sociology, public health, and nursing, point to new directions for expanding the scope of mixed methods research. In a related vein, there is considerable scope for further theoretical growth and practical development of MMR in the transdisciplinary field of applied linguistics. To grow in scope in applied linguistics, MMR needs to be expanded regarding its key dimensions that have emerged from years of research including the philosophical, theoretical, methodological, policy, pedagogical, literacy, discourse, and human element dimensions (see Plano Clark & Ivankova, 2016; Tashakkori & Teddlie, 2010). This chapter puts forward discussions regarding how applied linguistics researchers can contribute to furthering these dimensions. Due to space limitations, among other dimensions, the methodological dimension is addressed in greater detail.
The philosophical dimension

Guiding the research at the level of paradigm, the philosophical dimension plays a substantial role in advancing ontological and epistemological discussions relating to the nature of inquiry in a particular discipline – helping practitioners to make appropriate “paradigmatic sense of mixed methods practice” (Greene & Caracelli, 2003, p. 91). Unlike social and human sciences, applied linguistics research does not seem to have developed serious ontological and epistemological discussions regarding the integration of qualitative and quantitative methods. Most of the researchers in our field seem to have adopted a pragmatic approach to conducting MMR (Hashemi & Babaii, 2012, 2013).

Putting aside purist and a-paradigmatic perspectives (purism argues for incompatibility of the paradigms and a-paradigmatism contends that although logically independent and mixable, paradigms cannot influence practical decisions), mixing qualitative and quantitative methods becomes possible considering a good number of philosophical stances, the most predominant of which include critical realism, dialectic stance, dialectical pluralism, critical dialectical pluralism, transformative paradigm, and performative paradigm.

Critical realism in the American tradition embraces ontological monoism and epistemological multiplicity. This paradigm holds that reality is single but can be understood through a constructivist subjective view of knowledge. Ontologically, from a critical realist viewpoint, some aspects of reality are independent of the human mind and the relationship between language and reality represents the truth, facilitating epistemological dialogue between different perspectives (see Losch, 2009).

From a dialectical perspective, qualitative and quantitative methods can be integrated based on the premise that it is possible to establish dialogue between the positivist and hermeneutic paradigms (Greene, 2007). The enhanced view of taking the dialogue beyond the philosophical tensions regarding the methods has been put forward as “dialectical pluralism” in which pluralism comprises difference in various inquiry contexts whereas dialectical denotes dialogical as well as dialectical – this view adopts a pluralist ontology and a dialectical epistemology (Johnson, 2017). On the basis of this meta-paradigmatic perspective (see Harriffs, 2011), Johnson (2017) argues, researchers can democratize research by appreciating and learning from multiple worldviews, disciplines, values; valuing multiple voices; and encouraging interaction among different ontologies and epistemologies.

Building upon dialectical pluralism, Onwuegbuzie and Frels (2013), presented a research paradigm for the purpose of giving voice to marginalized and disfranchised groups, addressing social justice issues. They suggest that the new paradigm, called “critical dialectical pluralism,” can take research beyond transformative and dialectical stances at various levels including research conceptualization, planning, implementation, and utilization (ibid.). Unlike dialectical pluralism that is remarkably versatile regarding the choice of paradigms to be integrated, critical dialectical pluralism adopts a more emancipatory approach to the integration of the paradigms and only allows for the combining of “those paradigms or worldviews that promote and sustain an egalitarian society” (ibid., p. 14). This paradigm is ontologically pluralist and synechist (i.e., favors continuity as opposed to duality like subjective vs. objective or value-laden vs. value-free) and epistemologically constructivist, expressing that knowledge is both socially constructed and “based on the reality of the world we experience and live in” (Onwuegbuzie & Frels, 2013, p. 18).

The transformative paradigm or the transformative–emancipatory perspective, as Mertens (2007) proposed, seeks to ask serious questions pertaining to the goal of research and its
social impact considering the marginalized groups and communities. According to Mertens, researchers working within this paradigm consider the political dimension at all levels and stages of research and explore the problem with the central concern for issues of social justice and power. Ontologically, the transformative paradigm holds that there are multiple realities that are socially constructed; epistemologically, the paradigm revisits the relationship between the researcher and the researched in light of the fact that “knowledge is socially and historically located within a complex cultural context” (Mertens, 2007, p. 216).

Recently, a performative paradigm has been introduced to expand the paradigmatic debate regarding MMR (Schoonenboom, 2019). This paradigm is based on assumptions underlying the role of the researchers, their values and beliefs, the worlds they live in, the worlds created by them, and the idea of research as a process in which reality “talks back” to the researcher (ibid., p. 1). The performative paradigm is similar to the hermeneutic paradigm in that it builds upon a constructivist ontology and epistemology. It differs from other paradigms in that it guides research through the intricacies of the phenomenon reflected in “the existence of distinct worlds” that are inter-subjectively created by the researchers through various “constituting concepts” (Schoonenboom, 2019, p. 289).

Although applied linguistics researchers might find philosophical debates regarding mixing methods dauntingly challenging, such discussions can provide us with remarkable insight as to how methods can be mixed within a theoretical framework and at the methodological level. Epistemological and ontological views inform and guide methodological and design decisions and influence the quality of interpretations drawn from a study – helping the researchers to philosophically rationalize their methodological decisions and choices (Creswell & Plano Clark, 2011).

The theoretical dimension

Influenced by paradigmatic stances, theoretical assumptions “guide the design and conduct of research” (Plano Clark & Ivankova, 2016, p. 137). To expand the theoretical scope of MMR in the field, researchers need to discover how and to what extent applied linguistics theories can be in conversation with MMR theoretical assumptions. In social research, they argue, MMR can intersect with theories originating from broad frameworks (e.g., feminist theory) and middle-range theories (e.g., ecological theory). In applied linguistics, broad theoretical approaches such as postcolonialism, critical theory, critical applied linguistics, complexity theory, and globalization as well as middle-range theories in subdisciplines like second language acquisition (SLA), language assessment, language teacher education, language curriculum studies, English for specific purposes, and so forth can inform and be informed by MMR theoretical and methodological developments. Based on our paradigmatic stance and theoretical perspective, we will be able to choose among a range of MMR designs including basic, advanced, cyclic, or innovative ones.

More specifically, being mutually informative, applied linguistic and MMR theoretical perspectives can harmonize with the nature of the research problem, context, and participants. Applied linguistics researchers can adopt an inter-theoretical mixed “way of thinking” – to borrow from Greene’s (2007) “mixed methods way of thinking” – by interconnecting the relevant theories. For example, aligning a social justice theory of MMR, influenced by the transformative paradigm, with a critical applied linguistic perspective can generate synergies that will lead to enhanced understandings of the nature of the problem, the most appropriate design to address it, and a coherent research output. In second language acquisition research,
adopting a complexity theory perspective in light of a dialectical pluralist paradigm can lead to choosing advanced cyclic mixed methods designs. Another example could be intersecting ecologically driven perspectives on language learning and mixed methods research realized within a performative paradigm standpoint.

Identifying studies within the matrix of broad and middle-range theories in applied linguistics and theories that inform MMR will influence researchers’ thinking and decision making with regards to developing coherent research systems. This kind of thinking can enhance the quality of a given mixed methods study by addressing its theoretical consistency and quality of meta-inferences (Tashakkori & Teddlie, 2008), consequential legitimation (Leech, Dellinger, Brannagan, & Tanaka, 2010), and professional legitimation (Biddle & Schafft, 2014).

The methodological dimension

Although a number of studies have addressed MMR methodological issues in applied linguistics (e.g., Hashemi & Babaii, 2012, 2013; Riazi & Candlin, 2014), issues pertaining to the nature of mixing and the main methodological components such as research purpose and research questions, MMR sampling issues, the nature of MMR designs, attention to the emerging MMR data analysis techniques, and MMR data integration strategies continue to be of great significance to the scope of MMR in the future (Mertens, Bazeley, & Bowleg, 2016; Plano Clark & Ivankova, 2016).

A systemic view of MMR

Methodology is a dimension essential to the advancement of MMR at the technical level. It is a system comprising components that interact to bring to existence the research process from the design to the implementation stage, and can be enhanced through promoting the quality of its components and the interaction between and among them. Discussions regarding research quality often deal with each component separately while the study is being conducted. The interaction among components through the pre-research, whilst-research, and post-research phases, and the possibility of various, complex patterns of interaction, however, become of notable significance particularly in the context of mixed methods. Thus, the quality of MMR does not rely on merely the quality of each component and how the components act within a procedural framework based on a systematic view of MMR. In addition to each component’s quality and the systematicity of the design and conduct of the MMR study, adopting a complexity theory perspective, we need to take into account a systemic view of MMR (see Maxwell & Loomis, 2003) that mandates close attention to the nature and changing patterns of interaction among the components. Furthermore, a systemic view requires that methodology itself be consistent with various dimensions of MMR. In this regard, MMR systems work on the basis of networks of interaction within and across philosophical and theoretical, methodological, and method levels.

What can make systemic MMR distinct is geared to how the research process and output are viewed as parts of a dynamic complex system that varies from one state to another at various points in time. The system also exists within a larger ecological environment and social context (Plano Clark & Ivankova, 2016) and is influenced by and influences philosophical, theoretical, pedagogical, policy, human, and discourse dimensions. Systemic MMR’s point of departure is not the componential incorporation of the methods or the integration of isolated compartmentalized elements. Rather, it is the genetic essentiality of MMR (i.e., the genetic interdependence
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of qualitative and quantitative components within a unified system rather than the separate treatment of qualitative and quantitative methods) that counts in a systemic view of MMR.

**Advanced and innovative MMR designs**

To further elaborate on broadening the methodological scope of MMR in light of a systemic view, we need to take into account recent developments and future directions relating to MMR designs and MMR data collection and analysis. These improvements are related to the use of advanced and innovative MMR designs that fit well with a systemic view of research.

Unlike basic and fixed MMR designs, in which convergent and sequential categories are used based on a predetermined systematic plan with fixed procedural elements (e.g., in a sequential explanatory design a quantitative phase is followed by a qualitative explanatory phase – see Creswell & Plano Clark, 2011), advanced mixed designs utilize various mixing possibilities based on the research purpose and the nature of the problem. In advanced mixed designs, qualitative and quantitative strands can be used in repeated cycles creating a dynamic interaction between the strands and their components (see Nastasi et al., 2007) – an example could be the use of a recursive cycle of quantitative and qualitative strands combining convergent and sequential designs (e.g., Qual → [Quan + Qual] → Quan) in a multiphase research project such as questionnaire development and validation or program evaluation.

Dynamism and adaptability to various research contexts and purposes with different degrees of complexity make advanced MMR designs flexible with respect to being intersected with or embedded within other research designs in longitudinal, cross-sectional, interventionist, case study, and action research (see Plano Clark & Ivankova, 2016). Advanced MMR designs can be very helpful for investigating complex phenomena and systems in applied linguistics through utilizing interventionist or cyclic designs in curriculum planning and program evaluation, mixed methods longitudinal and cross-sectional research in second language acquisition, mixed methods corpus analysis, cyclic mixed methods language test design and validation, transformative mixed methods critical discourse analysis (CDA), and so on.

Innovative MMR designs can also be used to explore both old and emerging problems from new angles. One way in which mixed methods researchers can develop novel designs is to explore new possibilities of mixing in qualitatively or quantitatively driven mixed methods contexts. By and large, utilizing qualitatively driven MMR has gained popularity in recent years. For instance, grounded theory (see Hadley, this volume) can be connected to mixed methods for the purpose of theory generation and theory testing (Johnson, McGowen, & Turner, 2010). Johnson et al. (2010) argue that mixed methods grounded theory (MM-GT) utilizes multidirectional or circular relationships at different levels and layers of the study (i.e., from the paradigm down to the method level) to link the “nomological” and “ideographic” modes of understanding of the human world. In support of this view, a number of studies justified the use of MM-GT both theoretically and empirically (see Guetterman, Babchuk, Howell Smith, & Stevens, 2019; Hashemi & Gohari Moghaddam, 2019). Another notable example is mixed methods phenomenological research (Mayoh & Onwuegbuzie, 2015). According to Mayoh and Onwuegbuzie (2015, p. 103), various combinations of qualitative and quantitative strands with phenomenology can be generated innovatively on the basis of the study purpose.

Accordingly, applied linguistics researchers can utilize GT-MM or mixed methods phenomenological research models when applicable to the study or enjoy the liberty of experimenting with various integration patterns including MMR and narrative inquiry, MMR and arts-based research, MMR and various forms of ethnography, and so forth.
Big data and MMR

Another strategy for bringing in innovations in the design of MMR studies can be working with new modes and forms of data, utilizing flexible data conversion techniques. Thanks to the new technologies, the scale and scope of data that can be collected and analyzed in social and behavioral research have been exponentially expanding. In applied linguistics research, the use of big data and modern data mining techniques can foster the progressive image of research. In fact, collecting and analyzing big data and dealing with extremely large amounts of information can give rise to new and altering trajectories of understanding. Big data, coming from learners, teachers, stakeholders, media, social networks, and corpora, can open up new possibilities for carrying out research in SLA and English language teaching (ELT). Big data, particularly in the form of text, lends itself to investigation in terms of both breadth and depth. Integrating quantitative exploratory and qualitative explanatory investigation of big data can provide us with a more comprehensive representation of the prevalent patterns and their behaviors, the behavior of extreme cases, the relationships that exist, and the meanings that continue to exist and change. MMR data analytic techniques help make big data statistically, semantically, and semiotically expressive in a systemic fashion. Applying MMR to big data in applied linguistics can help researchers reassess their methodological and theoretical approaches (Bone Emele, Abdul, Coghill, & Pang, 2016) and reorient their studies in light of modern data modeling strategies. Further, the scope of sampling in MMR can be expanded by integrating classical mixed sampling strategies (i.e., identical, parallel, nested, multilevel; see Collins, Onwuegbuzie, & Jiao, 2007) and big data sampling techniques (see Ramos, Kery, Rosenthal, & Dey, 2017, p. 27) such as “query by committee” (i.e., maintaining a set of classifiers trained on a labelled data set prepared to vote on the labels of input data points, whose disagreement patterns lead to the emergence of the most informative data points), “uncertainty sampling” (i.e., choosing data points for which there is high uncertainty), “density sampling” (i.e., using a spatial grid to probabilistically choose points from high probability regions corresponding to the number of points in the grid cells). In more complex sampling designs, these strategies can be supplemented by new techniques such as spatial autocorrelation analysis where geographic clustering of the participants is a concern in large-scale sample design decisions (Brown, Wood, & Griffith, 2015). In their study, Brown et al. (2015) sought to present a new method of spatial clustering of perceptions to take account of the notion that people with similar perceptions tend to cluster in similar geographical regions. They claim that using spatial autocorrelations can be helpful to quantitatively identify the range of perspectives on a given topic and qualitatively promote mechanisms to explore the spatial clustering of views through focus groups.

As for MMR data analysis in large-scale projects (e.g., corpus studies), computer-aided quantitative analysis (e.g., using concordances such as myCAT, AdTAT, MonoConc and programs such as KH Coder and MAXDICtio) and computer-based qualitative analysis (e.g., using NVivo, QDA, ATLAS.ti. Software programs) can be carried out.

An important concern in MMR, data integration can be achieved through a number of techniques. Recently, visual representation of the meshing of qualitative and quantitative data has gained attention. Guetterman, Fetters, and Creswell (2015), for example, advocate the use of joint displays that combine qualitative and quantitative data through visual means so that researchers will be able to develop meta-inferences and new insights beyond what separately treated as quantitative and qualitative data would reveal. In another study, Alexander, Eppler, and Bresciani (2019) adopted an MMR approach to using visual replay methodology (VRM) to analyze small group discussions. They used this innovative approach to explore the processes that underlie visual conversations and discussed that mono-method research is not adequate.
for this purpose. Alexander et al. (2019) showed that MMR-based VRM can provide researchers with opportunities to explore discourse and uncover patterns behind visual conversations both introspectively and retrospectively.

**Multimodal and transmodal MMR**

Considering the modes in which the data can be represented and how they interact with or transform into each other creates a novel MMR space. In MMR, the data can be collected and analyzed in various modes. Thus, a systemic interconnection between modes of data considering a network of data components and their textual, visual, auditory, geometrical, or mathematical properties can pave the way for the use of multimodal MMR. According to O’Halloran, Tan, Pham, Bateman, and Moere (2018), multimodal MMR can explore data that exist in different modes including text, images, and video. Adopting a multimodal social semiotic view, O’Halloran et al. (2018) used three tasks to integrate quantitative and qualitative data. They first qualitatively identified key linguistic and visual systems across media; then, they developed quantitative data mining algorithms for the systems; finally, they synthesized these strategies to develop new algorithms. In line with a systemic view of MMR, their study made use of multimodal data transformation, quantitative data mining, and information visualization. O’Halloran et al.’s (2018) study is a good exemplar of an advanced MMR design that uses digital multimodal analysis of big data and data mining strategies innovatively.

Other than investigating semantic, semiotic, and statistical representations and relationships between and among various data modes in multimodal MMR, researchers can explore how meaning transfers from one mode to another considering intrapersonal and interpersonal levels as well as inter-modal, intra-modal, and trans-modal conditions. Modes do not just co-occur or interact to convey meaning; rather, “semiotic modulations” cause transition of meaning from one mode to another and “meanings expressed in the different modes dynamically blend, shape, and reshape each other” – creating the concept of “transmodality” (Murphy, 2012, p. 1969). From a transmodal perspective, MMR can bring together quantitative investigation of peri-modal elements (i.e., communicative elements and sub-modes peripheral to the core mode in a given context) of meaning making as well as qualitative exploration of transmodal essence of meaning and its relation to human experience and life. This approach to MMR can be helpful when researchers and participants are engaged in performance, particularly in performance ethnography and arts-based research. Expression and transfer of meaning by participants across modes (Tomlinson, 2015) and analyzing such instances both qualitatively and quantitatively create a unique transmodal space for discovering additional implications and minute nuances of the phenomenon under exploration – helping researchers exceed numerical and linguistic limitations in dealing with the data.

**An alternative to data integration**

Challenging the idea of data integration in MMR on the grounds that the data that come from separate strands may misrepresent the phenomenon by synthesizing parts that are not relevant to the whole, Uprichard and Dawney (2019) call for an alternative view of dealing with MMR data. They argue that exploring complex systems demand that researchers deal with complex data (not the type of data that can be collected through simple qualitative and quantitative modules). This view holds that refusing to integrate is acceptable and can lead to the emergence of data that are complex, fuzzy, and messy instead of data that would be neat but devoid
of spirit and diminished in terms of coherence, intensity, and originality. To offer a solution to the integration problem, Uprichard and Dawney (2019) conceptualize “diffraction” as an alternative to data “integration.” To them, diffraction can help researchers encounter messy data as a whole and examine them across methods, allowing the data to disintegrate. This systemic approach to MMR data collection and analysis can be situated in the context of applied linguistics research particularly when working on bulky data coming from large corpora in discourse studies (see both Coxhead and Martinez, this volume) and complex and messy data in SLA research.

The policy dimension

This dimension is linked to decision making and principle setting at the levels of design, participation, conduct, dissemination, and utilization of research in MMR projects (see Fielding, 2010). The policy dimension is very much organizational and institutional. Regarding academic contexts, applied linguistics departments in universities can make a valuable contribution to promoting MMR and its quality standards by developing coherent policies on the use of mixed methods research. Developing policies on offering research grants to MMR projects based on criteria such as the duration and scope of the project, number of researchers involved, nature of the MMR designs utilized (i.e., the phases involved and how the project uses quantitative and qualitative strands), and the value and impact of the project can be a determining factor.

In organizational research, institutionalized agency serves a crucial role in determining the rationale, purpose, and method of research. In organizations, economic issues, managerial decisions, and research culture often play decisive roles. Thus, language education institutions may greatly benefit from developing coherent policies for conducting MMR as this research method draws on quantitative measurement of the performances and language learning and teaching outcomes as well as qualitative exploration of the language learning and teaching processes.

Moreover, applied linguistics journals can develop MMR publication policies and present more detailed quality criteria for publishing MMR studies. One can hardly find coherent policies among applied linguistics journals on mixing qualitative and quantitative components, the nature and type of MMR relevant to the aims and scope of the journal, and quality criteria for accepting MMR manuscripts. In their submission guidelines, applied linguistics journals can mention quality criteria including the rationale for and justification of mixing, design and sampling of MMR manuscripts, mixed methods data collection and analysis, quality of data integration, presentation of mixed methods results, development of meta-inferences in the discussion section, and norms for reporting MMR. Also, given the fact that most journals publish their issues online, it is well worth considering if standards of length for MMR manuscripts could be revisited. In effect, reporting integrated or diffracted findings needs ample space that usually exceeds the established norms required for qualitative and quantitative manuscripts.

Other than the significance of policy in conducting and utilizing mixed methods, MMR, particularly viewed from a transformative perspective, does have social impact and functions normatively with regard to the contexts in which it is being used – aiming at bringing about institutional change. The policy dimension is, therefore, in a mutual relationship with the political aspect of conducting MMR. As a method used in applied research contexts (see Fielding, 2010), MMR, if viewed from a critical transformative stance, can become socially and culturally sensitive. In applied linguistics research, the appropriate use of MMR with regards
to policy aims and political goals can lead to institutional and social emancipation, particularly in light of developments in English as a lingua franca (ELF), English as an international language (EIL), and world Englishes.

The pedagogical dimension and MMR literacy

Concerns about the teaching of MMR demonstrate that researchers may lack the education needed to conduct both qualitative and quantitative studies or combine them in an appropriate manner (Hesse-Biber, 2015). According to Onwuegbuzie, Frels, Leech, and Collins (2011), the challenges of teaching MMR and a lack of literature on the pedagogy of mixed methods could present a serious issue.

Confirming that there is little information on teaching mixed methods, Mertens, Bazeley, Bowleg, Fielding et al. (2016) suggest that MMR instruction should not be restrained to including modules within qualitative or quantitative research courses. They further discuss that separate MMR courses must be designed to address different aspects of mixing methods including philosophical, methodological, design, procedural, and research report issues. Presenting recommendations for the future of teaching MMR, they call for “a transformed research methods curriculum” (ibid., 2016, p. 21) for undergraduate courses in which philosophical assumptions underlying the research methods are discussed and students are encouraged to think critically about the factors that guide research. In addition, they argue that the teaching of MMR is by nature collaborative and instructors need to share their syllabi, methods, and materials. Their suggestions for the future of MMR instruction also include developing MMR guidelines for undergraduate and graduate students, providing opportunities for mentoring and team research, and creating fun ways to teach MMR.

Hesse-Biber (2015) makes a case for developing a mixed methods pedagogy. Any mixed methods pedagogy needs to consider the syllabus and teaching method, content and materials, the teacher, the learner, the teaching and learning processes and challenges, and evaluation. She argues that a mixed methods pedagogy culture needs to be fostered and the faculty teaching mixed methods must be trained and well-prepared.

A natural concomitant of the pedagogical dimension is MMR literacy. Research on this is meager. MMR literacy does not actually equal having knowledge of qualitative and quantitative research methods. It involves being theoretically and methodologically competent to communicate and engage professionally in the context of mixed methods research. From an MMR literacy perspective (unlike the classical perspective that encourages teamwork among researchers from qualitative and quantitative backgrounds), researchers specializing in MMR become integral members of a team. It is MMR literacy, rather than qualitative or quantitative literacy, that guides MMR research projects.

MMR discourse

The discourse of MMR has evolved in the social and human sciences. Recently attention has been placed on the rhetorical dimension of reporting mixed methods research (Fetters & Molina-Azorin, 2017). However, a limited number of studies addressed the macro- and micro-level properties related to the discourse of MMR (e.g., Freshwater, 2007; Hashemi & Gohari Moghaddam, 2019). To grow in scope in the field, MMR needs to develop discursively and inter-discursively with regards to its generic variability, rhetorical patterns, narrative structure, and so on. The members of the applied linguistics research community will certainly observe
certain discourse strategies to communicate their knowledge, research findings, and experiences coming from a mixed methods background.

The intersection of applied linguistics and MMR discourse systems, thus, leads to the emergence of a unique way of constituting and communicating knowledge through social processes involving the use of hybrid genres, novel rhetorical patterns, specialized terminology, distinctive textual and functional features, relevant communication strategies, idiosyncratic as well as conventional discourses, and appropriate modes and media of dissemination (see Hashemi & Gohari Moghaddam, 2019; Fetters & Molina-Azorin, 2017). As such, the developing discourse of MMR in applied linguistics can be explored to help members of the discourse community develop technical knowledge of how mixed methods findings can be appropriately and professionally communicated in the field of applied linguistics.

The human dimension

To carry out an MMR project, researchers from different research backgrounds work together as a team to design and implement a study. In this sense, the roles of the researchers and how they interact with each other and with the human participants become critical to the process of designing, deploying, and managing the research project. In their 2010 editorial, Tashakkori and Teddlie emphasize that the role of mixed methods researchers have evolved from a technocratic nature toward a role that reifies researchers as methodologists and at the same time as human beings themselves; thus, see the mixed methods researcher as an “every day problem solver” (2010, p. 273). This view capitalizes on the role of the researcher as a human being with capabilities that help him or her approach a problem considering the challenges, drawbacks, and difficulties of the problem and also developing and adopting innovative approaches to solving the problem.

The human dimension in MMR is not simply confined to the role of the researcher as human; it also extends to the role of the participants as humans. Therefore, the nature of mixed methods exploration regarding the role of the researchers and participants has necessitated a shift from “autocratic” and “bureaucratic” to “democratic” evaluation as “an aspirational activity designed to involve research respondents in constructing the evaluation agenda and to provide information for the widest possible public audience” (Torrance, 2012, p. 118). Involving the research respondents contributes to the nature of inquiry changing its focus from “research on people” to research “by, with and for” them (Nind, 2017, pp. 278–279, italics in original). From a transformative MMR stance, inclusive inquiry advocates the emancipatory practice of engaging participants in the design, conduct, and use of research by valuing their voices and ideologies.

The future of the human dimension in MMR can also be greatly influenced by professional development and professional identity of MMR researchers. It seems that most applied linguistics researchers assume a distinct qualitative or quantitative researcher identity. The development of MMR as a third methodological movement demands that researchers who continually conduct MMR and incline toward the professional use of it in applied linguistics develop identities as mixed methods researchers. The mixed methods researcher identity deals with the condition of being, the process of becoming, and the nature of identifying oneself as a mixed methods researcher (cf. Mertkan & Bayrakli, 2018).

The human element, comprising both personal and social levels, can influence design and integration quality of mixed methods studies and also have a higher-level impact on how MMR is disseminated, used, understood, and evaluated. According to Plano Clark and
Ivankova (2016), personal contexts, rooted in philosophical and theoretical stances and background knowledge and experience of researchers, influence the practical dimension of MMR. They further discuss that interpersonal contexts that comprise interactions and team work within complex systems of relationships have a critical role in MMR (ibid.). To them, working in teams or interacting with co-researchers, participants, reviewers, and policy makers demand that the mixed methods researcher consider the “changing dynamics” of collaboration (2016, p. 219).

To further enhance the quality of an MMR study, we need to have a clear management policy and strategy and a detailed plan to be able to manage the human resources, costs, time, risks, and communications between and among team members or with other parties. Since MMR needs ample time, budget, and cooperation of different researchers in a team (some of whom might enter the project at a particular stage like data collection or analysis) monitoring of the process and evaluation of the outcome become integral parts of a mixed methods project. Any miscalculation at the planning or implementation stages will cause the project to go over budget, place the team under time pressure, and affect the design of the study in a negative way.

**Conclusion**

Addressing key dimensions of MMR (i.e., philosophical, theoretical, methodological, policy, pedagogical, literacy, discourse, and human element dimensions), this chapter has explored possibilities for broadening the scope of mixed methods inquiry in applied linguistics. This chapter advocates adoption of new directions and use of innovative approaches to designing and conducting MMR in applied linguistics considering the main components within and across the dimensions. To conduct mixed methods inquiry is to design, deploy, manage and, at the same time, immerse philosophically, theoretically, and methodologically, in a coherent and complex research system – a whole which, according to Hesse-Biber (2010), is greater than the sum of its qualitative and quantitative parts. Adopting a systemic view of MMR in applied linguistics, researchers can become engaged in MMR systems, in which all stages and components of the study interact dynamically. Systemic thinking in general is a key strategy to expand the scope of MMR in applied linguistics. Applied linguistics research has the potential to contribute to transcending borders of conducting mixed methods research.

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