

Expanding Approaches for Research: Mixed Methods

By Norman Stahl, Jodi Lampi, and James R. King

Editor's Note: Practitioners' familiarity with current research and understanding of appropriate design and data interpretation is critical across higher education and specifically in developmental education programs. The influx of "innovations" to program and curricular structure and delivery has accelerated in the past several years. Practitioners have a vital role to play in both implementing and evaluating various models and spin-offs. "Expanding Approaches for Research" columns addressing specific research methods are presented to assist practitioners to design research studies—on the classroom, program, institutional, or cross institution levels—that are appropriate and informative. Join the conversation: "front line" professionals' voices are needed!

ABSTRACT: *Qualitative and quantitative research focusing on the specializations of developmental education, learning assistance, and student success have generated impactful findings that provide a greater understanding of both the theory underlying the psychology of learning and the development of praxis. Yet there are underutilized research methods that can answer a myriad of research and evaluation questions from new vantage points so as to promote meaningful programmatic reform or curricular/instructional innovation. It is the purpose of this discussion to provide foundational knowledge of mixed methods approaches so as to encourage their use by teams of researchers and practitioners answering the vexing questions that impact the field during this era of higher education reform.*

Across the decades the research community interested in developmental education, learning assistance, and the emerging umbrella of a student success field has undertaken investigations of both a quantitative and qualitative nature in order to generate theory and to gain a greater understanding of the psychology of learning and programmatic praxis. Yet a review of the primary journals and texts in the field demonstrate a dearth of articles pertaining to research methodology (as opposed to program evaluation) with the primary focus being on quantitative methods (Goudas, 2018; Griffie, 2004, 2005a, 2005b; Pollard, & Duigan, 2011; Stahl, Brozo, & Henk, 1984; Stahl, Henk, & Brozo, 1994) with limited coverage of qualitative research methods (Stahl, King, & Lampi, 2018). Furthermore, the parameters set by each of these approaches to inquiry do present both strengths and limitations. Hence, it is the purpose of this column over this and upcoming issues of the *Journal of Developmental Education* to briefly describe approaches to quantitative and/or qualitative methods with a focus on those seeming to be underutilized in our field yet also thought to be practitioner friendly, thus allowing their use by research teams that include practitioners as meaningful partners (e.g., Armstrong, Stahl, King, Kantner, Perkins, Sobin, & Dalrymple, 2019). With such endeavors we can answer a myriad of research and evaluation questions and potentially lead to meaningful reform or innovation for opening

up new frontiers for the fields of developmental education and learning assistance. In this column we focus on mixed research designs.

Mixed Research Designs

Although mixed methods research is not new to the research scene, this method has yet to be undertaken extensively by professionals within the field. Further, the findings from the limited number of investigations have rarely been published within the journals for the developmental education, learning assistance, college reading/learning, college transitional mathematics, or basic writing fields.

Mixed research designs are also referred to as mixed methods research or multistrategy research. It might be said that, as an outgrowth of the paradigm wars between the advocates of positivistic-oriented research and the supporters of interpretivist/constructivist research, there evolved a third wave in the 1990s known as the mixed methods research paradigm (see Teddlie & Johnson, 2009). When undertaking a research investigation as solely a quantitative research study or a qualitative research investigation, it is

recognized as being monomethodological work. Quantitative-oriented research focuses on the controlled, and highly touted, randomized selection, collection, analysis, and interpretation of numerical data drawing upon probability theory, measurement instrumentation, and statistical processes leading to inferences and generalizations. Studies using this design are undertaken with the desire to be objective and scientific. Such endeavors seek to answer questions that explain and predict the human condition and actions (e.g., who, where, how much/many, what is the relationship between variables, what is the cause and effect?). Qualitative inquiry, on the other hand, strives to explore, capture, and describe variables of the lived experience of individuals or groups in the context of a respective culture. Such understanding is promoted through the processes of data saturation, theoretical saturation, and informational redundancy. Yet, as samples are often small and not randomized, the findings are not generalizable beyond immediate contexts. With each paradigm displaying its own strengths and weaknesses, some researchers (see Onwuegbuzie & Mallette, 2011) propose that each approach has a place within the same research investigation. Given this perspective, the growth of the mixed method paradigm within our specializations makes sense.

Individuals who promote mixed method approaches believe that many research questions can best be answered via a multistrategy design that fully interrelates the findings from the various components. Denscombe (2008) has provided four identifiers to recognize a mixed method approach:

1. Quantitative and qualitative methods are employed in the same investigation.

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2. The research design explicitly specifies the sequencing and priority given the quantitative and qualitative elements of data collection and analysis.
3. An explicit account of the relationship between both the qualitative and the quantitative elements of the design is provided.
4. Pragmatism provides the philosophy and foundation for the investigation. (p. 270)

The key here is that the quantitative data and the qualitative findings are not simply provided in the report as separate but equal components of a study, but rather there is a concerted effort to melt together the findings at some stage to create new and richer understandings of the answers to the questions formulated to guide the investigation.

Collins, Onwuegbuzie, and Sutton (2006) proposed that mixed research designs move through 13 interactive and recursive steps, which they categorize in three stages:

Formulation Stage: 1. Determining the mixed goal of the study, 2. Formulating the mixed research objective, 3. Determining the rationale of the study and the rationale(s) for mixing quantitative and qualitative approaches, 4. Determining the purpose of the study and the purpose(s) for mixing quantitative and qualitative approaches, and 5. Determining the mixed research questions(s).

Planning Stage: 6. Selecting the mixed sampling design, and 7. Selecting the mixed research design.

Implementation Stage: 8. Collecting quantitative and/or qualitative data, 9. Analyzing the quantitative and/or qualitative data using quantitative and/or qualitative analysis techniques, 10. Validating/legitimizing the mixed research findings, 11. Interpreting the mixed research findings, 12. Writing the mixed research report, and 13. Reforming the mixed research question(s). (pp. 69-70, also see Onwuegbuzie & Mallette, 2011; p. 309)

Since it is the purpose of this column to provide an overview of the mixed method approach, an individual (or we would advocate a researcher/practitioner team of investigators) considering such an approach for a research endeavor will find the discussion of the methodology as presented in Creswell and Plano-Clark (2011), Greene (2007), Onwuegbuzie and Mallette (2011), Tashakkori and Teddlie (2010), and Teddlie and Tashakkori (2009) to be foundational.

Still we caution the future researcher, particularly the research neophytes in the doctoral programs serving our fields, to mind the sage words of Robson and McCartan (2016) before undertaking such a study:

So, a multi-strategy design is not to be selected lightly, particularly by a lone and/or new researcher. Not only do you need to have the requisite skills to use both qualitative and quantitative data collection techniques successfully, but you also need the time to actually carry out at least two very different types of data collection – and to analyze and interpret the resulting data. Obviously, experience, and the existence of a team of researchers, reduce many of these concerns. (p. 186)

For those colleagues who have yet to employ such an approach to inquiry but are considering undertaking a mixed methods research project, we suggest that the following research reports might serve as useful exemplars: Benge, Onwuegbuzie, Mallette, and Burgess (2010); Knaggs, Sondergeld, and Schardt (2015); Onwuegbuzie and Benge (2018), and Ungar and Liebenberg (2011). Current research can be found in the *Journal of Mixed Methods Research* or the *International Journal of Multiple Research Approaches*.

Conclusion

The perspectives addressed in this column series serve two interrelated purposes. From an explicit stance, we suggest that there are very potent research methodologies that have been available yet are clearly underutilized by the field's research community and practitioners. For instance, the mixed methods design permits educators to ask questions and seek answers to questions that have been overlooked or thought to be unapproachable in the past. The mixed methods design has been thoroughly tested and found to have great validity by researchers in the all-encompassing field of pedagogical research. Hence, we suggest that the method should be considered well suited for the design and the evaluation of praxis and programs associated with the reform movement in higher education including those endeavors focused on specializations within our fields.

From a more implicit perspective this column serves as a call to action that will encourage and will guide a new generation of researchers emerging from doctoral programs as well as those researchers currently climbing the tenure and promotion ladder. It is a call to action to document, empirically, and then disseminate widely the work that is being done writ large across the field of developmental education and learning assistance (regardless of the label that might be used to identify the field now or in the future). Research methodologies, whether experimental, quasiexperimental, qualitative, historical, and so forth,

along with the enabling technologies, evolve or even morph across each academic generation. Hence, each new generation must define the very concept and practice of research both basic and applied. That includes the use of an ever-evolving set of methodologies and technologies to answer questions unthought of a generation before.

The methods described here and in future columns in the series are research methods that have been underutilized by the field. By examining each approach more thoroughly and then carefully considering the potentiality of each for future research endeavors, it is our hope that a mindset if not a disposition is formed that leads professionals to regularly explore each new generation of methodologies. By doing such we suggest that practitioners and researchers alike will come to value, to develop comfort with, and to make use of an ever-evolving world of research approaches across the decades ahead. Such partnerships can provide direction to improve praxis and benefit myriad aspects of higher education, most importantly students. In the issues ahead, we will examine Design/Formative Experiments and Action Research.

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