Mixed methods research in second language writing: A systematic research synthesis

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Abstract

In the field of second language (L2) writing, we have recently seen "a collective future trend towards methodological diversity and expansion of repertoires of research methods and approaches" (Manchón & Matsuda, 2016, p. 9). In responding to the call for methodological diversity, we set out to explore mixed methods research methodology in L2 writing research. Mixed methods research (MMR) has been acknowledged as a 'third' or 'alternative' methodological approach along with quantitative and qualitative research approaches over the past two decades in social sciences and other fields. However, relatively little has been discussed with regard to MMR in the field of L2 writing. More importantly, well-designed, rigorous MMR can have a great potential to provide a holistic understanding of complex issues in L2 writing research. Given these, in this article, we report the findings from our systematic synthesis of 27 empirical MMR in L2 writing with respect to 'research contexts/participants,' 'research topics,' 'purpose of MMR,' 'data sources,' and 'structure of MMR.' Our research synthesis provides L2 writing researchers with some valuable insights into the trend of and future directions for MMR in L2 writing.

Keywords: mixed methods research; second language writing; systematic research synthesis; methodological diversity; research methodology

1. Introduction

As the nature of second language (L2) writing has evolved with emerging technologies, it is necessary for L2 writing researchers to rethink about research methodology so as to better capture the complexity and diversity of L2 writing and writing instruction. In the L2 writing field, we have recently seen "a collective future trend towards methodological diversity and expansion of repertoires of research methods and approaches" (Manchón & Matsuda, 2016, p. 9). Yet, "L2 [writing] has not at this point developed a particular conceptual or theoretical framework or methodological approach" (Silva, 2016,

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p. 33). Given that, it is timely to explore various methodological issues arising from conceptualizing and conducting L2 writing research.

While responding to a call for methodological diversity in L2 writing, we set out to explore a mixed methods research (MMR) methodology in L2 writing research for two specific reasons. First, MMR has been acknowledged as a 'third' or 'alternative' methodological approach, along with quantitative and qualitative research approaches, over the past two decades. However, relatively few MMR studies have been conducted and/or published in L2 writing. For instance, a recent review of the empirical research published in the *Journal of Second Language Writing (JSLW)* (Riazi, Shi, & Haggerty, 2018) revealed that there were only five mixed methods studies out of 272 empirical studies published in the JSLW between 1992 and 2016. Second, well-designed MMR can have a great potential to provide a holistic understanding of complex issues in L2 writing research. L2 writing varies depending on its purpose, its audience, and its context. Therefore, MMR helps the researchers delve into diverse aspects of L2 writing. In this article, we report the findings from our systematic research synthesis on MMR in L2 writing. The following six research questions guided our research synthesis: (1) In what context was MMR in L2 writing conducted?, (2) Who were the participants in MMR in L2 writing?, (3) What kinds of topics were explored in MMR in L2 writing?, (4) What was the purpose of MMR in L2 writing?, (5) What types of data were gathered in MMR in L2 writing?, and (6) How were quantitative and qualitative methods mixed? By answering these questions, we are aimed to articulate ways in which L2 writing researchers apply MMR to L2 writing research and to give valuable insights into methodological diversity and implications for L2 writing research.

2. Method

Following the steps to conduct a "systematic research synthesis" suggested by Ortega (2015), we first specified the research questions to be synthesized as noted above. Then, we identified a comprehensive set of data sources to be searched, considered criteria for inclusion of published materials, and then conducted a content analysis of the published studies identified in this research synthesis. More specially, we first tried to identify MMR published in the *Journal of Second Language Writing (JSLW)* given that the JSLW is the flagship journal in the field of L2 writing. While looking at every single empirical research published in the JSLW, we encountered the challenge of defining MMR in our synthesis. The definition of mixed methods research has been still debated (Cresswell & Plano Clark, 2007; Johnson, Onwuegbuzie, & Turner, 2007; Teddlie & Tashakkori, 2009). Further, a great number of JSLW studies gathered and/or analysed both qualitative and quantitative data; however, many authors did not identify their work as mixed methods research. Thus, for our synthesis, we decided to follow the way Riazi, Shi, and Hagget identified MMR in their recent synthesis (2018) by including mixed methods research that "*explicitly* stated that it used a mixed methodology" (p. 45) (emphasis added). Six JSLW articles that met this criterion were identified. We then expanded our searches to include other peer-reviewed journals relating to applied linguistics and literacy studies. We searched journals that are devoted to publishing writing/literacy research (i.e., *Assessing Writing, Journal of Adolescent & Adult Literacy, Journal of Literacy Research, Journal of Response to Writing, Journal of Writing Research, Literacy, Reading & Writing, Reading & Writing Quarterly, Writing & Pedagogy,* and *Written Communication*), and we were able to find additional eight studies from these ten journals. At that point, we decided to include more applied linguistics and TESOL-related journals (i.e., *Applied Linguistics, Computer Assisted Language Learning, English for Specific Purposes, Journal of English for Academic Purposes, Language Learning & Technology, Modern Language Journal, Studies in Second Language Acquisition, TESOL Quarterly,* and *System*) and found another 13 MMR in L2 writing. Given that there is relatively little writing about MMR in L2 writing, we did not limit the time frame of publications to be included. From the several rounds of these searches, we were left with a

final total of 27 empirical studies that met our criteria, (a) empirical research, (b) peer-reviewed articles relevant journals, and (c) MMR identified by author(s). We then met for creating a code book that was created based on our research questions and that included 'context of research,' 'research participants,' 'research topics,' 'purpose of MMR,' 'sources of data,' and 'structure and process of MMR.' The search controlled the time frame of publications from 1992 to 2018. After our initial independent content analysis of 27 MMR studies, we frequently communicated face-to-face and via email to further discuss our analysis and verify our interpretations by comparing notes that each of us had taken separately on each research question. Our findings will be described in the subsequent section.

3. Findings and Discussions

This section includes the findings and discussions based on the research questions.

3.1. Research questions 1 & 2: Research contexts and participants

Overall, research contexts and participants were quite straightforward and relatively easy to identify. In terms of "context" where MMR was conducted, the majority of MMR in L2 writing was conducted in higher education contexts (20 out of 27 studies), including 13 MMR studies in an ESL context and seven MMR in an EFL context. Only five studies took place in K-12 schools, three of which focused on (junior) high school students; one took place in the private institution. It is not surprising to find that much of MMR addressed L2 writing issues in the tertiary institutions; however, it is interesting that MMR has been conducted quite equally across ESL and EFL contexts (14 ESL and 13 EFL studies). It seems promising that L2 writing researchers across the ESL and EFL contexts have considered to conduct MMR to advance L2 writing research and instruction.

3.2. Research question 3: Research topics in MMR in L2 writing

We were interested in learning whether there was any particular topic that MMR designs were specifically employed to explore. Admittedly, some articles seem to address several research topics, generating multiple categories of topics for our analysis; additionally, some topics/categories seem to overlap to some extent. Thus, we decided to identify a single primary research topic for each study. Drawing upon L2 writing research topics/categories identified by Riazi et al. (2018), we found eight topics/categories emerging from 27 articles reviewed. Those eight primary topics/categories include "assessment/evaluation" (8 studies), "feedback" (7 studies), "instruction" (4 studies), "source-based writing" (3 studies), "professional development" (2 studies), "composing processes" (2 studies), and "language/literacy development" (1 study).

One significant finding here is that MMR designs were most popular for exploring issues of assessment and evaluation, and least popular for the topic of language and literacy development. Perhaps, it may not be surprising to find that L2 assessment/evaluation research has employed MMR designs because MMR has been frequently used in evaluation research in general (Greene, Caracelli, & Graham, 1989). Yet, it is striking that of 27 mixed methods L2 writing research reviewed, there was only one MMR that explored language and literacy development.

3.3. Research question 4: Purposes of MMR in L2 writing

MMR literature typically identifies five purposes for MMR designs (Green, Caracelli, Graham, 1989; Palinkas, Aarons, Horwitz, Chamberlain, Hurlburt, & Landsverk, 2011), such as (1) complementarity, (2) convergence, (3) expansion, (4) development, and (5) sampling. We drew upon these five purposes for our analysis.

The most striking finding is that all except one research conducted MMR for the purpose of "complementarity" (15 studies) or "convergence" (11 studies). As the most common purpose of MMR, "complementarity" refers to:

> using each set of methods to answer a related question or series of questions for purposes of evaluation (e.g., using quantitative data to evaluate outcomes and qualitative data to evaluate process) or elaboration (e.g., using qualitative data to provide depth of understanding and quantitative data to provide breadth of understanding) (Palinkas et al., 2011, p. 46).

Importantly, all the 15 MMR studies with complementarity purpose employed quantitative methods as a primary method, and qualitative methods as a secondary one.

While MMR with complementarity purpose attempts to answer related or series of research questions, MMR with convergence purpose uses both quantitative and qualitative methods to answer the same question by triangulating the data to see if they reach the same conclusion or converting one type of a data set into another (e.g. quantifying qualitative data) (Palinkas et al, 2011, p. 46). We found 11 MMR studies with convergence purpose in our analysis.

What is also compelling to us is that none of the MMR reviewed in our study was conducted for the purposes of "development" ("using one type of method to answer questions that will enable the use of the other method to answer other questions") or "sampling" ("using one type of method to define or identify the participant sample for collection and analysis of data representing the other type of method") (Palinkas et al., 2011, p. 46). We speculate that MMR with "development" or "sampling" purposes could be very challenging and complicated to design and enact because MMR with these purposes requires much higher integration and connections between qualitative and quantitative methods rather than MMR with other kinds of purposes (complementarity or convergence). In other words, one type of method must be designed based on the results of another method. Although L2 writing researchers may feel more challenged by conducting MMR with the development or sampling purposes, it would advance L2 writing research in that "the first method is used to help inform the development of the second" (Greene et al., 1989, p. 260), and full integration between two methods is highly desirable in mixed methods research (Fetters, Curry, & Creswell, 2013).

3.4. Research question 5: Data sources

The MMR we reviewed gathered a wide range of data from multiple sources. We found five types of quantitative data used as we see multiple types of data in a single study: text samples (13 studies), survey questionnaires (10 studies), test and exam scores/grades (8 studies), experiment results (3 studies), and think-aloud protocols (1 study). We also found seven types of qualitative data, such as interviews (18 studies), text samples (15 studies), survey questionnaires (4 studies), audio recordings (3 studies), observations (2 studies), focus group meetings (2 studies), and think-aloud protocols (1 study). Clearly, text samples (e.g., L2 students' essays, teachers' reflective journals, written feedback, self-reports, and narratives) were the major source of data in L2 writing MMR. Importantly, the same type of data (i.e., text samples, questionnaires, and think-aloud protocols) was used as either quantitative or qualitative data, depending on how the data was analyzed and used in a given study. For instance, three studies (Cotos et al., 2017; Early & Saidy, 2014; Iida, 2016) used text samples for both quantitative and qualitative analyses. To explore the effects of a web-based platform on genre learning called the "Research Writing Tutor," Cotos and her colleagues (Cotos et al., 2017) qualitatively analyzed discourse and language patterns from student responses (text samples), and then all the discourse-pattern codes and language-pattern codes were quantified to compare the findings within and between participants and groups.

We also analysed how many data sources were used for each study. Each MMR we reviewed used the range of 2–6 sources of data. Approximately half of the studies (14 studies) used three types of data, five studies used four types of data, and seven studies used only one of each quantitative and qualitative data. One study (Bai, 2015) used the largest number of data with six different sources, including intervention 'questionnaires' and 'tests' as quantitative data and 'interviews,' 'conferencing,' 'observations,' and 'teacher journal logs' as qualitative data.

3.5. Research question 6: Structures of MMR in L2 writing

Drawing upon the MMR taxonomy of Palinkas et al. (2011), we identified four structural categories from the analysis of 27 MMR studies, such as (1) QUAN+QUAL, (2) QUAL+QUAN, (3) QUAN→qual, and (4) QUAL→quan. Here, 'quan' and 'qual' refer to 'quantitative' and 'qualitative,' respectively; upper- and lower-case letters indicate the primary and secondary method, respectively. A plus sign (+) and an arrow sign (→) denote a concurrent and sequential design, respectively. For instance, [QUAL+QUAN] indicates a concurrent structure in which both qualitative and quantitative data are simultaneously collected and analysed to answer research questions, with equal or similar weights to qualitative and quantitative data and analysis. [QUAN→qual] indicates a quantitatively-initiated, sequential structure with more weight attached to the quantitative data collection and analysis.

Our analysis reveals that the sequential MMR was most frequently used in MMR in L2 writing (16 out of 27 studies), along with the 11 concurrent MMR studies. Interestingly, almost all the sequential MMR was quantitatively-initiated with more weight attached to the quantitative data and analysis, designed as a [QUAN→qual] structure. This finding clearly shows that L2 writing researchers who employed mixed methods designs are familiar with or prefer first conducting quantitative data collection and analysis and then moving on the qualitative aspects of the research. According to Creswell and Plano Clark (2007), the sequential [QUAN→qual] structure is relatively straightforward to implement "because the researcher conducts the two methods in separate phases and collects only one type of data at a time" (p. 74).

One of the notable findings is lack of qualitatively-initiated MMR in L2 writing. In particular, qualitatively-initiated sequential MMR (only one study in our review, i.e., Plakans and Gebril's study in 2012) seems to be challenging because it requires considerable time to transition from a qualitative phase to a subsequent quantitative phase and has difficulty in providing detailed procedures of the quantitative phase in the initial qualitative stage (Creswell & Plano Clark, 2007). However, we like to draw L2 writing researchers' attention to the possibilities of qualitatively-initiated MMR in L2 writing research. Mixed methods researchers (Creswell & Plano Clark, 2007) argue that qualitatively-initiated MMR designs can be especially powerful for exploratory research that is primarily concerned with discovery or theory-building. As the term, "exploratory" implies, exploratory research typically explores new issues, problems, or phenomena that have not been clearly defined yet. It is more like an initial project through which researchers can gain some insights into the research problem rather than intending to offer conclusive evidence. Thus, qualitatively-initiated, exploratory MMR in L2 writing has a great possibility in that a qualitative part of MMR, while offering a better understanding of the problem, can form the basis of another part of MMR (the quantitative part), helping L2 writing researchers determine the research design, sampling, data collection, and so forth.

4. Conclusions

Our research synthesis can provide L2 writing researchers with some valuable insights into the trend of MMR in the field of L2 writing and ways in which MMR has been applied to L2 writing research. First, we identified only 27 author-identified MMR studies from the peer-reviewed journals, which certainly

indicates the relative lack of MMR in L2 writing research. We wonder if L2 writing researchers might have been restrained to a comfort zone with a regulated paradigm of L2 writing as either qualitative or quantitative. Yet, what is promising to us is that all but one study (Barkaoui, 2007) we reviewed have been published since 2010; additionally, MMR in L2 writing has been conducted equally across ESL and EFL contexts. These findings certainly signify that MMR is a recently growing methodological paradigm used for L2 writing research.

Second, K-12 contexts have still been under-researched in MMR in L2 writing, which needs to be considered for future research. Despite the increasing interest in school-age L2 writers (Cummings, 2012; de Oliveira & Silva, 2013; Ortmeier-Hooper & Enright, 2011), our review uncovered a gap of L2 writing MMR, especially in the ESL primary and secondary education contexts. This might have been an ongoing issue in L2 writing even after Leki, Cumming, and Silva (2008) critically pointed out the scarcity of L2 writing research in the secondary school context.

Finally, we acknowledge that our review has a limitation that we did not necessarily look into how and to what extent the combination of methods (quantitative and qualitative) is appropriate and effective. Furthermore, it should be noted that many other valuable pieces of research without a direct reference to mixed-method research were omitted. For the future research, L2 writing researchers can examine the effectiveness of the combination, what some may call "mixing" (Hesse-Biber, 2010, p. 465) of methods (quantitative and qualitative). In doing so, we will gain a better sense of potential benefits of conducting MMR in L2 writing and eventually implement more MMR into L2 writing, thereby achieving methodological diversity and advancing the field of L2 writing.

5. Ethics Committee Approval

The author(s) confirm(s) that the study does not need ethics committee approval according to the research integrity rules in their country (Date of Confirmation: September 01, 2020).

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Appendix A.

The reviewed MMR in this research synthesis is listed as the following.

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İkinci dil yazımında karma yöntem araştırması: Sistematik bir araştırma sentezi

Öz

İkinci dil (L2) yazma alanında, son zamanlarda "metodolojik çeşitliliğe ve araştırma yöntemleri ve yaklaşımlarının repertuarlarının genişletilmesine yönelik kolektif bir gelecek eğilimi" gördük (Manchón & Matsuda, 2016, s. 9). Metodolojik çeşitlilik çağrısına yanıt olarak, L2 yazı araştırmasında karma yöntem araştırma metodolojisini keşfetmeye başladık. Karma yöntem araştırması (KYA), sosyal bilimlerde ve diğer alanlarda son yirmi yılda nicel ve nitel araştırma yaklaşımlarının yanı sıra 'üçüncü' veya 'alternatif' bir metodolojik yaklaşım olarak kabul edilmiştir. Bununla birlikte, L2 yazma alanında KYA ile ilgili olarak nispeten az tartışılmıştır. Daha da önemlisi, iyi tasarlanmış, titiz KYA, L2 yazma araştırmalarındaki karmaşık konuların bütünsel bir şekilde anlaşılmasını sağlamak için büyük bir potansiyele sahip olabilir. Bunlar göz önüne alındığında, bu makalede, L2 yazımında 27 deneysel KYA'nın sistematik sentezinden elde ettiğimiz bulguları 'araştırma bağlamları / katılımcıları', araştırma konuları " KYA'nın amacı " veri kaynakları 've' KYA'nın yapısı. 'Araştırma sentezimiz, L2 yazma araştırmacılarına, L2 yazımında KYA'nın eğilimi ve gelecekteki yönleri hakkında bazı değerli bilgiler sağlar.

Anahtar sözcükler: karma yöntem araştırması; ikinci dil yazısı; sistematik araştırma sentezi; metodolojik çeşitlilik; araştırma metodolojisi

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