Interventions to Improve Teacher Self-Efficacy Beliefs about Writing and Writing Instruction: Lessons Learned and Areas for Exploration

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Introduction

Teachers' writing beliefs and identities as writers can serve as either barriers or bridges to quality writing instruction (Troia & Graham, 2016). Findings from national, industry, and education data, suggest that student writing skills need more attention and focus in schools, with only one-quarter of students meeting the proficient level for writing (National Center for Educational Statistics, 2017). Unfortunately, many teachers report feeling unprepared to teach writing and avoid teaching it in their classrooms (Cutler & Graham, 2008).

The complexities of teaching writing present a myriad of obstacles that can lead to teacher avoidance (Fry & Griffin, 2010; Troia & Graham, 2003; Troia & Maddox, 2004). Writing is complex to teach because students must be motivated and self-efficacious, have background knowledge on the topic, genre, and audience, use both long term and working memory, physically produce the text, continuously monitor their writing, and then revise and reflect on the written piece (Chenoweth & Hayes, 2003; Graham et al., 2000; Hayes, 1996). Thus, writing is multifaceted and often deemed as a complex and "impossible" skill to teach (Hall, 2016).

Teachers also avoid teaching writing due to their lack of specialized teacher preparation for writing pedagogical content knowledge and instructional skills (Myers et al., 2016). For instance, both elementary and secondary teachers have reported that they received minimal to no preparation to teach writing through teacher preparation programs, thus leading to the concern that teachers are not

adequately prepared to teach writing effectively (Gilbert & Graham, 2010; Lewis & Wray, 1999). The complexity of the subject matter and teachers' lack of preparation often influence teachers' self-efficacy to write and teach writing (Troia & Graham, 2003; Troia & Maddox, 2004).

Researchers have identified that teacher self-efficacy beliefs are important to consider because believing oneself to be capable and confident is a crucial component in completing complex tasks successfully (Bandura; 1977, 1982, 2001). Current research aligns with the notion that teachers' feelings, confidence, and self-efficacy toward writing impacts their writing instruction and assessment (Dempsey et al., 2009; Guo et al., 2010; Korth et al., 2017; Rietdijk et al., 2018; Street, 2003). The difficulty of teaching the skill without quality preparation can lead to low levels of confidence and self-efficacy, which can impact teachers' writing instruction and potentially student achievement.

One possible way to remediate low levels of self-efficacy for writing and writing instruction is through interventions that aim to shift self-efficacy beliefs. Interventions and teacher preparation programs targeting self-efficacy have, in some cases, proven to be effective in increasing teachers' self-efficacy as writers and as writing teachers. By increasing teacher self-efficacy for writing and writing instruction, students' have more opportunities to learn writing and engage in the writing process (Cantrell & Hughes, 2008; Dismuke, 2015). If developing effective teachers of writing is important, researchers must pay attention to the types of interventions that effectively influence teachers' self-efficacy for writing and writing instruction. As Tschannen-Moran and Hoy (2001) suggest, supporting the development of teachers' self-efficacy is essential for producing effective, committed, and enthusiastic teachers.

Study Purpose and Rationale

Measures of students' self-efficacy for writing have deepened the field's understanding of how to better prepare teachers for writing instruction. For instance, Bruning and colleagues (2013) provide a review of literature on the importance of developing self-efficacy for writing with middle school students. However, we found no current work on best practices for improving self-efficacy for teachers of writing. The purpose of this study is to systematically review the literature around developing teacher self-efficacy for writing and writing instruction to discover what we already know as a field, methods and measures used to establish that knowledge, and if and how teacher self-efficacy impacts student achievement. Our research questions for this inquiry are:

(1) How are changes in self-efficacy for writing and writing instruction measured?

(2) What interventions increase teachers' self-efficacy for writing and writing instruction? What interventions have not shown to impact teacher self-efficacy for writing and writing instruction?

(3) How does increased levels of teacher self-efficacy for writing and writing instruction influence student writing achievement?

The next sections define self-efficacy and explore the importance of examining shifts in teacher self-efficacy. Then we discuss prior foundational reviews of self-efficacy in writing, including Pajares's 1992 and 2003 review. We argue that while Pajares (1992, 2003) has investigated self-efficacy through systematic reviews, there is a need for an updated review specific to teachers' self-efficacy for writing and writing instruction.

Literature Review

In the following sections, we define self-efficacy and discuss the impact of teacher self-efficacy for writing and writing instruction. We then explore previous foundational reviews of self-efficacy in writing.

Self-Efficacy

This work is guided by Bandura's definition of self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p.3). Bandura (1977, 1982, 2001) found that self-efficacy plays an influential role in the choices we make, the effort and perseverance we are willing to put forth, and the level of success we can obtain. These components of self-efficacy can directly influence "how much effort people expend and how long they persist in the face of obstacles and aversive experiences" (Bandura, 1977, p.194). Bandura (1977) identified that those with higher levels of self-efficacy are far more likely to persevere through difficult tasks and see challenges as opportunities to be mastered and learned from rather than unsurmountable risks (Bandura, 1977). Thus, the more teachers believe in their abilities, the more willing they are to put effort into the challenging task of teaching writing. It stands to reason then, that teachers with higher levels of self-efficacy for writing and writing instruction will be more likely to meet the challenges and complexities of teaching writing with confidence, potentially leading to greater student outcomes. Overall, "teacher self-efficacy is considered a powerful influence on teachers' overall effectiveness with students" (Pendergast et al., 2011, p. 47), and thus, it is essential to foster.

Impacting Teacher Self-Efficacy

Shifts in teacher self-efficacy for writing and writing instruction are important to consider for various reasons. First, there are vast instructional differences between teachers with low and high levels of self-efficacy. Research specific to self-efficacy for writing and writing instruction indicates that higher self-efficacy levels can greatly influence teaching behaviors, such as their ability to adapt writing instruction to struggling writers (Graham et al., 2001). Furthermore, teachers with higher levels of self-efficacy have shown to have a greater impact on students' language and literacy gains in preschool settings (Guo et al., 2010).

Teachers who have higher levels of self-efficacy for writing and teaching writing are also more likely to spend time teaching writing, which increases the chances of them using research-based practices (Brindle et al., 2016). More specifically, teachers with higher self-efficacy beliefs reported that they spent more time teaching grammar and usage as well as basic writing processes (e.g., planning, text organization, and revising) than their less efficacious counterparts (Graham et al., 2001). Teachers with high self-efficacy can push beyond their existing knowledge or experiences to develop mastery instructional strategies for their students (Tschannen-Moran & Barr, 2004). If we want to increase teachers' use of research-based practices in the classroom, it is important to identify interventions that have successfully shifted self-efficacy beliefs in writing and writing instruction.

Considering that research indicates various reasons why teachers should be self-efficacious in writing and writing instruction, it is important to identify how to positively influence teachers' self-efficacy beliefs. Bandura discusses four sources of creating and strengthening one's self-efficacy: (a) mastery experiences, (b) social persuasion, (c) vicarious experiences, and (d) physiological and emotional states (Bandura, 2010). According to Bandura (2010), the most effective way to create a strong sense of self-efficacy is through *mastery experience*s. In these experiences, an individual feels the accomplishment associated with successfully implementing skills. This is particularly important for writing as success comes over time with guided practice. The other sources of self-efficacy include observing quality models (i.e., vicarious experiences), verbal persuasion of capabilities (i.e., social persuasion), and physical and emotional reactions to situations (i.e., physiological and emotional states) (Bandura, 2010). Interventions focusing on these sources of self-efficacy, especially mastery experiences, may be one way to impact teachers' self-efficacy beliefs.

While higher levels of self-efficacy may lead to positive effects on instructional practices, Whitacre (2019) found that teaching self-efficacy is content specific. For instance, a teacher with high levels of self-efficacy for teaching

science may lack self-efficacy in teaching content area writing. Since self-efficacy is content specific, it is important to consider how the construct is measured. For example, a measure of global teaching self-efficacy may not reveal a teacher's content-specific self-efficacy, and therefore, these types of tools would not be appropriate for documenting self-efficacy in writing and teaching writing. In this study we identify the measurement tools used to document changes specific to writing and writing instruction to provide a comprehensive overview of how these changes are assessed. Knowing how self-efficacy for writing is being measured will help us interpret the related findings and make recommendations for future research.

Prior Foundational Reviews of Self-Efficacy in Writing

In the following sections, we take a deeper look at Pajares's (1992, 2003) conceptual reviews and discuss how our current study builds upon this work.

Pajares (1992). One of the few reviews focused specifically on teachers' writing self-efficacy was conducted by Pajares (1992). Pajares (1992) summarized knowledge in the field of teacher beliefs prior to 1992. Paramount for teachers of writing were findings on teacher decision making. Pajares's conceptual paper supported Bandura's earlier work that individuals' beliefs strongly affect their behavior. Additionally, Pajares (1992) identified that teacher beliefs impact their decisions regarding engaging in particular tasks and using particular methods and tools to carry out tasks.

It was not until 1992 that Pajares used the term "self-efficacy" in relation to writing. Furthermore, *teacher self-efficacy* was not used until 1996 (Pajares, 1996). As over 25 years have passed, it is time to review the literature and synthesize what has been learned about teacher self-efficacy in writing since the 1990s.

Pajares (2003). Building upon his work in 1992, Pajares (2003) further synthesized research on self-efficacy beliefs in general. While his 1992 synthesis addressed writing self-efficacy in teaching, his 2003 review synthesized research on the relationship between writing self-efficacy and student achievement on academic writing tasks. His 2003 review addressed the relationship between writing self-efficacy, other motivation constructs related to writing (e.g., self-concept, confidence, levels of apprehension), and academic writing outcomes. He argued that students' confidence in their writing capabilities not only influence their writing motivation but also their writing achievement. This review highlighted the significance of self-efficacy beliefs on student academic writing performance,

suggesting that teachers should help foster and nurture student confidence and self-efficacy for writing.

The Present Review

Building off the work of Pajares (1992, 2003), the current review aims to synthesize what research has been conducted specific to self-efficacy and writing research since the Pajares (1992) review. Further, we focus our work on teachers, both pre-service and in-service, to better understand what professional development or teacher preparation interventions may increase teacher efficacy for writing and writing instruction. The results of this study will complement the previous studies and build on their work toward understanding teacher beliefs and how those beliefs impact classroom practice and learning.

Methods

For this systematic literature review, we analyzed the pool of research on teachers' self-efficacy for writing and writing instruction from January 1992 to August 2020. We chose to begin in 1992, as this corresponds to the publication of Pajares's (1992) seminal work about self-efficacy and writing.

Literature Search

We began by conducting a search using online databases of studies published between January 1, 1992 and August 1, 2020. Specifically, we located articles and dissertations found through ERIC and EBSCO, ProQuest, Web of Science (ISI), and PsycINFO. We searched for articles whose abstracts and titles included all of the following search terms: "efficacy", "writ*" and "teach*", with the latter two being wildcard searches. We retrieved 2,350 articles.

Screening Procedures and Inclusion Criteria

We followed the procedures of Cooper (2016) to systematically screen the articles we retrieved, following several phases. In the first phase of screening, we removed 637 duplicates and then eliminated 597 articles and 223 dissertations that did not relate to our study based on the title. Most of the articles eliminated at this point focused on writing and self-efficacy in disciplines outside of education, such as nursing, science, and business. These eliminations brought our total to 893 articles.

In the second phase, we screened abstracts to determine if the article or dissertation met all of our six inclusion criteria: (a) published January 1992 - August

2020; (b) peer-reviewed; (c) published in English; (d) includes measures or variables related to teacher preparation or training in writing; (e) hypothesizes a change in self-efficacy; and (f) includes measures of variables related to writing instruction or writing. In this round of screening, we excluded 798 articles.

We retained 95 articles for full screening. During full screening procedures, we read the entirety of the articles to ensure they met the six inclusion criteria and found that several articles did not include sufficient variables related to self-efficacy, teacher preparation or training, and writing or writing instruction. Therefore, another 67 articles were eliminated during this stage, leaving 26 in the final sample.

The first three phases of screening described were conducted by Authors 2, 3, and 4. The authors reached 100% consensus at each stage and double coded all abstracts and full texts. Therefore, full agreement was reached about inclusion of articles.

Coding Procedures

We reviewed the full text of the 26 included articles (which included six dissertations) and coded their content. Simultaneously, we also conducted quality coding to ensure that our included articles represented trustworthy findings in the field. We began by developing the coding scheme (Cooper, 2016), and then we worked together to code an article and ensure inter-rater agreement. Our coding matrix is provided in Appendix B. Once agreement was reached on multiple articles, the authors split the remaining articles and coded independently. At this stage, Authors 1 and 5 initially coded all articles, using both the coding scheme and quality indicators. Author 2 verified and cross-checked all coding to ensure accuracy. At this stage, 100% agreement was reached between the first and second coders.

Content Coding. As the goal of this study was to identify what is known about developing teachers' self-efficacy for writing and writing instruction, we recorded aspects of the studies that would influence those variables. These features included: (a) participant demographics (both teachers and students); (b) construct definitions and theoretical frameworks; (c) measurement tools; (d) research design; (e) intervention strategies; and (f) impact on self-efficacy.

Quality Coding. Using the quality indicators from Miller and colleagues (2015), who modified these standards from the AERA (2006) *Standards for Research,* we asked seven questions of each included study: (1) does the study use theory and research to develop the research questions or objectives?; (2) does the

study explicitly link findings to previous theory, research, and arguments?; (3) are the methods presented in enough detail to replicate the procedures?; (4) does the study provide evidence of reliability, trustworthiness, or credibility of evidence?; (5) does the study provide evidence of validity and/or member checking?; (6) does the study adequately describe the participants?; and (7) are the study conclusions supported by the data collected and analyzed? Using these indicators, we categorized each study into one of three groups. "Highest" research articles met all seven indicators. "Higher" research articles met between four and six of the indicators, and the remaining research articles met three or fewer of the indicators. To ensure that our conclusions were based upon findings from rigorous research, we omitted articles that included three or fewer indicators. As a result, we eliminated four additional articles bringing our final total to 22. Of the 22 total articles, six met the criteria for highest quality (See Appendix A).

Final Sample. The final sample consisted of 22 articles. Of the 22 articles, six were dissertations. Eleven of the articles investigated in-service teachers and 11 investigated pre-service teachers. Studies conducted with in-service teachers ranged from 4 to 61 participants and studies with pre-service teachers ranged from 9 to 209 participants. Interventions for in-service teachers included: attending a residential writing institute, lesson studies, professional development using the National Writing Project Model, collaborative inquiry training, instructional coaching, the *Tekster* program, writing workshops, and PLC meetings. Interventions for pre-service teachers included various undergraduate courses and programs (e.g., literacy courses) and training with online tools such as GoAnimate. The intervention success criteria for each study were based upon study specific measures. In other words, we identified the intervention as being successful if the authors of the research reported significant changes in teachers' self-efficacy as writers or as writing instructors.

Findings

In the following sections, we synthesize information about (1) measurements of self-efficacy, (2) success of writing and writing instruction interventions, (3) impact of intervention on self-efficacy for writing, (4) impact of intervention on self-efficacy for writing instruction, and (5) the impact of increased teacher self-efficacy on student achievement. Appendix A gives an overview of each of the articles examined in this literature review, including participant type (i.e., in-service or pre-service), sample size, self-efficacy construct being measured (i.e., writing, writing instruction, or both), tool to measure self-efficacy construct, the intervention implemented, and if each study found their intervention to be successful. This

information is a result of our full coding procedures.

Measurements of Self-Efficacy

When answering research question one, *How are changes in self-efficacy for writing and writing instruction measured?,* we determined that researchers utilized multiple measures to identify shifts in perceived self-efficacy. Table 1 lists the published and researcher-created measurement tools and what they were used to measure (i.e., self-efficacy for writing or self-efficacy for writing instruction)

Table 1
Self-Efficacy Measures

Published Measures

Measure	Citation (construct being measured)
Teacher Efficacy Scale for Writing (Graham et al., 2001)	• Galligan, 2011 (SE for writing instruction) • Koster et al., 2017 (SE for writing and writing instruction) • Troia et al., 2011 (SE for writing instruction)
Teachers' Sense of Self-Efficacy for Literacy Scale (Johnson & Tschannen-Moran, 2003)	• Ciampa & Gallagher, 2018 (SE for writing instruction) • Helfrich & Clark, 2016 (SE for writing instruction)
Writing Self-Efficacy Perceptions Scale (Aydın et al., 2013)	• Aydin, 2019 (SE for writing) • Özüdogru & Çakır, 2020 (SE for Writing)
Teacher Sense of Efficacy Scale (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001)	• Oh, 2011 (SE for writing instruction; teaching efficacy)
Teacher Efficacy Sources Inventory (Poulou, 2007)	• Oh, 2011 (SE for writing instruction; teaching efficacy)

Teachers' Writing Self-Efficacy Scale (Hughey, 2010; Hughey Surman & Schumaker, 2012)	• Hall M.D., 2016 (SE for writing instruction)

Researcher Created Measures	
Pre-service Teacher Self-Efficacy for Writing Inventory (PT-SWI)	• Hodges, 2015 (SE for writing and writing instruction)
Writing Self-Assessment Survey	• Lewis, 2016 (SE for writing)
Teachers as Writers: Self-Efficacy Questionnaire	• Locke et al., 2013 (SE for writing and writing instruction)
Unnamed Measures	• Dempsey et al., 2009 (SE for writing instruction) • Saine & West, 2017 (SE for writing instruction) • Wasserman, 2009 (SE for writing instruction)

Note. SE = Self-Efficacy

In addition to using surveys and questionnaires, many researchers drew from other data sources to identify levels of self-efficacy for writing and writing instruction. We found that 12 articles discussed conducting interviews (Assaf et al., 2016; Aydin, 2019; Dierking & Fox, 2013; Collet, 2017; Galligan, 2011; M.D. Hall, 2016; Holland, 2016; Locke et al., 2013; Marculitis, 2017; Murphy, 2012; Troia et al., 2011;Wasserman, 2009) and eight articles discussed participation in observations (Assaf et al., 2016; Collet, 2017; Galligan, 2011; Holland, 2016; Marculitis, 2017; Murphy, 2012; Saine & West, 2017; Wasserman, 2009) to measure self-efficacy. Lastly, reflections (A.H. Hall, 2016; Holland, 2016; Wasserman, 2009), written short- answer responses (A.H. Hall, 2016), and focus groups (Galligan, 2011; Murphy, 2012) were other data sources used to gain further insight on teachers' self-efficacy for writing and writing instruction. In the next section, we discuss what researchers have found to be successful interventions in shifting teachers' self-efficacy for writing and writing instruction.

Influence of Interventions on Teacher Self- Efficacy

To answer research question 2, *What interventions increase teachers' self-efficacy for writing and writing instruction? What interventions have not shown to impact teacher self-efficacy for writing and writing instruction?,* we first determined if researchers presented evidence of a shift in teachers' levels of self-efficacy for writing and writing instruction as a result of the intervention. The evidence presented varied according to each researcher's measurement tool and method of analysis. In the next few sections, we discuss the researchers who reported a successful intervention as well as the reported impact of interventions on teacher self- efficacy for writing and writing instruction.

Success of Interventions

Of the 22 articles reviewed, three focused solely on increasing teachers' self-efficacy for writing (Aydin, 2019; Lewis, 2016; Özüdoğru & Çakir, 2020), 16 focused solely on the impact of interventions on literacy or writing instruction (e.g., assessment, instructional methods, literacy teaching) (Assaf et al., 2016; Collet, 2017; Ciampa & Gallagher, 2018; Dempsey et al., 2009; Dierking & Fox, 2013; Galligan, 2011; A.H. Hall, 2016; M.D. Hall, 2016; Helfrich & Clark, 2016; Holland, 2016; Marculitis, 2017; Murphy, 2012; Oh, 2011; Saine & West, 2017; Troia et al., 2011; Wasserman, 2009) and three articles (Hodges, 2015; Koster et al., 2017; Locke et al., 2013) examined both constructs. By combining the articles that examined one construct with the articles that examined both, six articles investigated self-efficacy for writing and 19 explored self-efficacy for writing instruction. Of the six total articles that investigated self-efficacy for writing, four (67%) found a positive impact, and of the 19 total articles that examined the impact of interventions on teacher self-efficacy for writing or literacy instruction, 15 (79%) found a positive impact. In the next section, we will explore specific interventions that were found to impact teacher levels of self-efficacy.

Impact of Interventions on Teachers' Self-Efficacy for Writing

Of the six articles that focused on teachers' or pre-service teachers' self-efficacy for writing four (67%) (Aydin, 2019; Koster et al., 2017; Locke et al., 2013; Özüdogru & Çakır, 2020) had successful interventions. When exploring how self-efficacy relates to pre-service teachers' overall writing performance, Lewis (2016) found that Generation 1.5 pre-service teachers (i.e., immigrants of two or more countries with diverse cultures and languages) experienced an increase in writing self-efficacy and writing confidence over a one semester upper-level writing

intensive course. Similarly, Aydin (2019) identified that pre-service teachers in a four- year undergraduate language program focusing on a wide range of theoretical and applied lessons in written expression and writing, showed an increase in self-efficacy for writing. However, they found that the four-year program only increased their self-efficacy for prewriting and drafting, but not for revising and editing. Özüdoğru and Çakir (2020) identifed that integrating digital storytelling as an intervention increased pre-service teachers' writing self-efficacy. Lastly, when determining the extent that teachers' self-efficacy for writing was modified as a result of their engagement a Writing Workshop (i.e., a workshop designed to scaffold teachers in producing a range of types of writing, providing feedback for peers, and engaging in the process approach to writing), Locke et al. (2013) identified that self-efficacy for writing increased for all participants but at varying degrees based on the sources of information they interpreted from the training.

While four of the six studies resulted in an increase in self-efficacy for writing, two studies found that their interventions had minimal impacts on self-efficacy for writing. For example, Hodges (2015) concluded that taking a semester-long writing intensive education course "has minimal influence on their perceptions and self-efficacy for writing" and rather the instructor of the course had the greatest influence on changes in self-efficacy for writing (p. 108). Similarly, Koster et al. (2017) identified that training (i.e.,16 lessons followed by two professional development days for implementation training) with a comprehensive writing program named *Tekster,* which focuses on combining strategy instruction, text structure instruction, and teaching self-regulation skills, did not change teachers' general attitudes towards writing. Table 2 provides information regarding the six studies that examined self-efficacy for writing, looking specifically at the intervention that was implemented and the results of the intervention.

Table 2
Impact of Intervention on Teacher Self-Efficacy for Writing

Citation	Pre-/In-service	Intervention	Results
Aydin (2019)	Pre	Undergraduate program in the field of language teaching (4 yrs.)	Turkish PSTs' writing SE improved. Their SE increased in prewriting and drafting items; no significant difference in revising and editing.

Hodges (2015)	Pre	Treatment: Pre-service teacher enrolled in writing-intensive courses Control: Pre-service teachers enrolled in general education courses	The type of course pre-service teachers enrolled in had minimal influence on their SE for writing and writing instruction.
Koster Bouwer et al. (2017)	In	Professional development on *Tekster*	Both trainers' and trainees' general attitude towards writing was not changed by the intervention program.
Lewis (2016)	Pre	One semester of a writing intensive college course	Generation 1.5 PSTs experienced an increase in writing SE
Locke et al. (2013)	In	Two six-day writing workshops (in January for two successive years) and one one-day Writing Workshop	Increased SE depended on the participant and the different sources of information they interpreted during the training
Özüdogru & Cakir (2020)	Pre	Treatment- PSTs created digital stories using the GoAnimate tool Control- PSTs created analog stories and materials	Digital storytelling increased PSTs' writing SE

Note. SE= Self- Efficacy, PST= Pre-service Teacher

Impact of intervention on Teachers' Self-Efficacy for Writing Instruction

Other researchers have focused on teachers' and pre-service teachers' self-efficacy for writing instruction. Of the 19 articles that investigated teachers' and pre-service teachers' self-efficacy for writing instruction, 15 articles (79%) (Assaf et al., 2016; Collet, 2017; Dempsey et al., 2009; Dierking & Fox, 2013; Galligan, 2011; A.H. Hall, 2016; M.D. Hall, 2016; Holland, 2016; Koster et al., 2017; Locke et al., 2013; Marculitis, 2017; Murphy, 2012; Oh, 2011; Saine & West, 2017; Wasserman, 2009) identified interventions that successfully increased teachers' self-efficacy for writing instruction. Of the 15 articles, three articles identified that the participation

in professional learning communities including collaborative inquiry increased self-efficacy for writing instruction (Galligan, 2011; Marculitis, 2017; Murphy, 2012). Two articles concluded that pre-service teachers who completed a literacy methods course with service-learning increased levels of self-efficacy for instruction (Oh, 2011; Wasserman, 2009). One-on-one instructional coaching was also found to be an effective intervention (M.D. Hall, 2016). Other interventions that successfully increased self-efficacy for writing instruction included: (1) online training in writing assessment (Dempsey et al., 2009), (2) an online platform through which pre-service teachers provided high school students with writing feedback (Saine & West, 2017), (3) a semester-long language arts course (A.H. Hall, 2016), (4) a one-week residential writing institute (Assaf et al., 2016), and (5) a sustained Writing Workshop-based program aimed at increasing teacher self-efficacy for writing instruction through mastery and vicarious experiences (Locke et al., 2013).

In addition to interventions to increase self-efficacy for writing instruction, some studies focused specifically on named programs and techniques. For instance, researchers that implemented principles of the National Writing Project (Dierking & Fox, 2013; Holland, 2016) over a two-year period, found that the project successfully influenced teachers' self-efficacy for writing instruction. Within this project, teachers were asked to attend trainings, complete online modules, take part in discussion groups, and attend one-on-one conferences with literacy academic coaches. Furthermore, professional development training on the Japanese practice of "Lesson Study" (Collet, 2017) was associated with heightened levels of self-efficacy for writing instruction. Within Lesson Study, teachers meet regularly to collaborate and plan lessons that become the focus of inquiry for effective teaching practices. During Lesson Study "lessons are crafted and then one teacher teaches the lesson while other members of the group observe. The lesson is then collaboratively revised and taught by other members of the group" (pp. 4-5). Lastly, training on the comprehensive online writing program named *Tekster* (Koster et al., 2017) showed to impact teachers' self-efficacy for writing instruction.

When looking more specifically at what made interventions successful, researchers found that (1) enhancing teachers' and pre-service teachers' identities as writers, (2) providing feedback, (3) collaborative review of student work, (4) increasing teacher knowledge of writing and pedagogy, (5) reviewing curriculum standards and writing resources, and (6) fostering community and collaboration were aspects of these interventions that contributed to their success (Assaf et al., 2016; Collet, 2017; Dempsey et al., 2009; Dierking & Fox, 2013; Galligan, 2011; Marculitius, 2017; Murphy, 2012; Saine & West, 2017; Troia et al., 2011; Wasserman, 2009). Researchers further found that opportunities for authentic practice, literacy-focused university coursework, enactive mastery experiences, and

witnessing student improvement were additional intervention components that helped to increase in-service and pre-service teachers' self-efficacy for writing instruction (Assaf et al., 2016; Ciampa & Gallagher, 2018; Collet, 2017; Dempsey et al., 2009; A.H. Hall, 2016; Oh, 2011; Saine & West, 2017; Wasserman, 2009).

However, of the 19 articles that measured self-efficacy for writing instruction, four found little to no impact of their interventions on teachers' self-efficacy (Ciampa & Gallagher, 2018; Helfrich & Clark, 2016; Hodges, 2015; Troia et al., 2011). More specifically, Troia et al. (2011) identified that engagement in a Writing Workshop professional development only had a moderate impact on teacher self-efficacy for writing instruction. However, it is important to note that Troia and colleagues (2011) indicate that their post-study interview did not specifically probe self-efficacy beliefs about writing instruction, so there may have been changes they were unable to document.

Helfrich and Clark (2016) also found their intervention had no impact on increasing self-efficacy beliefs. They identified that taking fewer literacy courses within teacher preparation programs actually led to higher levels of self-efficacy for writing instruction than taking more literacy courses. However, even though the pre-service teachers who took less literacy courses had higher levels of self-efficacy for writing instruction, their self-efficacy for writing instruction was still observed to be low compared to self-efficacy for reading instruction. Hodges (2015) concluded that the type of course a pre-service teacher is enrolled in (i.e., writing intensive or general) had minimal influence on their self-efficacy for writing instruction, however the amount of time spent writing influenced their levels of self-efficacy. Lastly, Ciampa and Gallagher (2018) identified that "over the duration of a one-semester literacy methods course with field experience, there was not a significant shift in literacy teaching self-efficacy beliefs of pre-service elementary teachers in Canada and the USA" (p. 473). However, they noted that the pre-service teachers who had already taken multiple, highly specialized literacy courses had high levels of self-efficacy for reading and writing connections prior to taking this course. They also stated that pre-service teachers with more field experiences prior to the course had higher self-efficacy related to engaging students and differentiating for their needs (Ciampa & Gallagher, 2018).

Teachers' Self-Efficacy for Writing Instruction on Student Achievement

While it has been theorized that improved teacher self-efficacy will impact student performance, there is sparse research on the topic. When answering research question 3, *How does increased levels of teacher self-efficacy for writing and writing instruction influence student writing achievement?,* we identified that only four of the included studies reported an impact on student achievement (Collet,

2017; Galligan, 2011; Koster et al., 2017; Murphy, 2012). Through the four studies identified, researchers found that interventions such as Writer's Workshop (Murphy, 2012), Lesson Study (Collet, 2017), online comprehensive writing programs (i.e., *Tekster*) (Koster et al., 2017) and collaborative practitioner inquiry (Galligan, 2011) were associated with shifts in students' writing outcomes. More specifically, Collet (2017) reported that students in the classrooms of teachers who participated in the Lesson Study process demonstrated a mean percentile growth from the 30th to the 46th percentile as measured by state assessment scores. Furthermore, Murphy (2012) found that teachers who participated in Writer's Workshop showed increased levels of self-efficacy and confidence with writing instruction and their students showed gains in writing achievement as measured by writing rubrics. However, these researchers do not make explicit connections between the teachers' increase in self-efficacy and their student's achievement. Instead, they explored how the intervention itself (e.g., Writer's Workshop, *Tekster*) impacted student writing achievement. These findings expose a gap in the literature, and thus, more research should be done in this area.

Discussion

In the following sections, we synthesize the findings and discuss how they align to previous research and theory on self-efficacy in the domain of writing and writing instruction. After reviewing the 22 articles coded in this study, we discuss what we know and do not know about measurements of self-efficacy, interventions that impact teachers' self-efficacy for both writing and writing instruction, and the influence of teachers' increased self-efficacy on student achievement.

Measurements of Self-Efficacy

Based on the findings of the present systematic review, there is a need for more reliable and valid tools that measure self-efficacy for writing and writing instruction, especially across diverse populations. Most of the articles within this review consisted of sample populations that were relatively similar (e.g., white females). Thus, current findings on how interventions impact teacher self-efficacy are predicted based solely on this one group. This indicates the need for reliable and valid measures that examine shifts in self-efficacy of various rural and urban populations as well as populations of color.

Measurements for self-efficacy for *writing* were particularly lacking. Tying back to the sources of self-efficacy, it is important for teachers to have mastery writing experiences to feel self-efficacious for teaching writing (Bandura, 2010). Students' self-efficacy for writing can also be influenced by how their teachers

portray their feelings for writing (e.g., vicarious experiences) (Bandura, 2010). For example, if a teacher clearly does not enjoy writing or find it meaningful, students' self-efficacy for writing may be impacted by these experiences. Therefore, it is important to be able to accurately measure teachers' self-efficacy for writing because it may influence their instructional practices.

Without published validity measures, it is challenging to widely generalize findings from the measures. The results of these studies may accurately depict teacher self-efficacy for writing instruction or may contain bias. Researchers in this field are in need of more measurement tools to look deeply at the constructs of self-efficacy for writing and writing instruction across diverse populations.

Impact of intervention on Teachers' Self-Efficacy for Writing

The findings of this review indicate that there are inconsistencies across interventions and their impact on teachers' self-efficacy for writing, specifically with pre-service teachers. When looking at the effects of writing intensive methods courses, results indicate that taking such a course in itself does not result in improved self-efficacy for writing. Rather, other factors result in shifting teachers' self-efficacy including the instructor (Hodges, 2015) and the participant themselves (Locke et al., 2013). This aligns with previous research that identifies the quality of the model, goals created, and the feedback provided has important factors in self-efficacy levels (Schunk, 1990). Additionally, some interventions, such as specific writing programs (i.e., Tekster*)* (Koster et al., 2017), are not effective in increasing writers' self-efficacy while other writing programs (i.e., GoAnimate) have shown to be effective. This may be the case because the *Tekster* intervention focused on writing instruction elements (i.e., combining strategy instruction, text structure instruction, and the teaching of self-regulation skills), while the GoAnimate intervention not only focused on writing instruction and lesson planning, but also focused on pre-service teachers' personal writing and improving written expression (Özüdoğru & Çakir, 2020).

It is still unclear how writing methods courses or professional development can be effective in increasing self-efficacy for writing. Even though taking a writing-intensive course was effective in shifting participants' self-efficacy for writing in one study (Lewis, 2016), similar writing-intensive courses were not as effective for participants in other studies (Hodges, 2015; Locke et al., 2013). Instructors who engaged the future teachers in writing activities and integrated writing into instruction saw the most gains in their students' self-efficacy. These interventions simultaneously attended to mastery experiences in writing and writing instruction, indicating both may be needed to impact self-efficacy. This finding is supported by Bandura's (1986) theory, which states that self-efficacy is

a product of multiple factors such as prior experiences, mastery-based learning, challenging commonly held beliefs, and observing quality models.

Since only six studies examined the effect of writing interventions on pre-service and in-service teachers' self-efficacy for writing, we are unable to make strong conclusions and implications about the most effective ways to shift teachers' self-efficacy for writing. Due to the small number of studies and the inconsistencies across interventions, there is a need for researchers to replicate these studies to identify if there is a pattern in the results. There is also a need for longitudinal studies that measure shifts in self-efficacy for writing within an intervention group. We know that self-efficacy takes a long time to change (Kher et al., 2013; Yeo & Neal, 2006), so we would not expect drastic changes in self-efficacy in the short amount of time allotted in the reviewed studies. More research is needed in this area.

Impact of intervention on Teachers' Self-Efficacy for Writing Instruction

Results specific to interventions that influence teachers' self-efficacy for writing instruction were inconsistent and sometimes contradictory. Participation in professional learning communities with collaborative inquiry (Galligan, 2011; Marculitis, 2017; Murphy, 2012), service-learning opportunities (Oh, 2011; Wasserman, 2009), instructional coaching (M.D. Hall, 2016), and providing students' feedback on writing (Saine & West, 2017) were some of the interventions that positively shifted pre-service and in-service teachers' self-efficacy for writing instruction. Other effective interventions in increasing self-efficacy for writing instruction include opportunities for authentic practice with real students, literacy-focused university coursework, enactive mastery experiences, and witnessing student improvement. These findings suggest that the more hands-on, interactive approaches are effective in increasing teacher self-efficacy for writing instruction. Therefore, simply offering coursework in writing and writing instruction is insufficient for impacting pre-service teachers' self-efficacy for writing instruction. These findings are similar to other self-efficacy studies that identified the interactive approach to increasing self-efficacy was more effective than the theoretical approach while teaching content areas such as science (Ozdilek & Bulunuz, 2009) and health (Goldenberg et al., 2005).

Results of this review indicate that there are still gaps in the research pertaining to teachers' self-efficacy for writing instruction. We know that some interventions, such as taking a method writing course in teacher preparation or having professional development specific to writing, may increase self-efficacy beliefs. However, across studies, we see inconsistent and contradicting results, which are likely due to confounding variables that are difficult to tease out of the

data. When looking at the four criteria Bandura (1986) outlines for self-efficacy, we found that many studies only focused on one or two of those criteria, rather than all four. For example, in Hodges (2015), the researcher focused on instructors as models of writing instruction through classroom observations and compared this data to pre-service teachers' self-efficacy. The researcher also examined mastery learning, as the pre-service teachers were engaged in either writing-intensive courses or traditional education courses. However, this study did not examine how challenging previously held beliefs or prior experiences shape self-efficacy. Perhaps, part of demystifying changes in self-efficacy lies is examining all four factors together.

Similar to the studies specific to self-efficacy for writing, there is a need for researchers to replicate these studies specific to self-efficacy for writing instruction to document patterns that may occur. Since we know that self-efficacy takes a long time to modify (Kher et al., 2013; Yeo & Neal, 2006), there is a need for longitudinal studies that measure shifts in self-efficacy for writing instruction.

Teachers' Self-Efficacy for Writing and Writing Instruction on Student Writing Achievement

Research indicates that as teachers increase their self-efficacy, they are more likely to engage in research-based writing instructional practices (Troia et al., 2011), feel more confident and competent in writing assessment (Dempsey et al., 2009), and have a more constructivist approach to writing (Assaf et al., 2016; Wasserman, 2009). These results indicate that focusing and fostering teacher self-efficacy for writing and writing instruction can result in more effective teachers of writing, and therefore, would suggest an increased level of student achievement. While we would assume that heightened levels of self-efficacy beliefs would result in increased student achievement, no studies explicitly explored the connection between teachers' heightened levels of self-efficacy and student achievement and is therefore a gap in the literature.

Although we know it is important to increase teacher self-efficacy for writing and writing instruction, the findings are sparse and inconclusive on if (and how) this shift in self-efficacy impacts student writing achievement. For example, only a few studies (Collet, 2017; Galligan, 2011; Koster et al., 2017; Murphy, 2012) examined how teacher self-efficacy for writing and writing instruction interventions impacted student writing achievement scores. Even within these few studies, self-efficacy measures were self-report which may not illuminate exactly how their beliefs influenced their classroom decision-making and teaching practices. There is a need for more studies on the influence of teacher self-efficacy

on student achievement. These studies should explore how teachers' levels of self-efficacy impact students at different grade levels and of different cultures (Kambara & Lin, 2021). This information could possibly drive the field forward in understanding how to increase student writing achievement.

Limitations

While we made every effort to be as inclusive as possible, several limitations are present in the current review. First, we are limited to the design features of the databases we searched, which may have inherently omitted pertinent studies that did not include our search terms in their database listing. Our process of searching the databases, reviewing the references of including articles, and using prior reviews as a starting point aided us in preventing oversight.

Second, our focus on quality also excluded some studies that may have altered the findings, if included. With our rigorous criteria for determining inclusion, in addition to the quality measures, we only focused on the most rigorous studies in the field. This adds validity to the findings, but we also note that it may have omitted other pertinent studies.

Finally, our sample size of 22 articles, while meeting the general guidelines for systematic reviews (Cooper, 2016), is relatively small. Therefore, the findings are a clear synthesis of what has been done since 1992, but we can make limited generalizations. The inherent limitations we noted throughout our findings also indicate that all the conclusions from this body of work should be considered within the context of the studies, rather than suggesting they are representative of the general population of teachers and students.

Implications, Future Research, & Conclusions

Despite progress made since 1992, much more work is needed to provide conclusive results for the field. To date, we cannot summarize general consistencies because the findings or results of the body of work differ so remarkably. This suggests there are mediating and moderating variables not included in current research designs, or that quality of the interventions or training may be impacting the results.

One of our most striking findings is that only four studies discussed how the researched interventions led to increased levels of student achievement (Collet, 2017; Galligan, 2011; Koster et al., 2017; Murphy, 2012), but did not make clear connections between increased teacher self-efficacy and student achievement. Since the goal of changing teacher behavior is to ultimately improve instruction, this is an oversight for the field. Moreover, many of the studies in this review are

small in nature, so the results cannot be generalized to larger populations. Future research is strongly needed to examine, with a large sample size, how changes in teacher self-efficacy influence classroom instruction and how that instruction increases student achievement and motivation to write.

As we have mentioned, while some studies did try to link teacher efficacy with student achievement, the associations were weak due to small sample sizes and measures that did not demonstrate reliable scores. Additionally, no included study attempted to link teacher efficacy with student motivation to write. Student motivation to write is an important part of writing, as it can inform how students value writing and how much emphasis they place on writing tasks and products (Wright et al., 2019). Without examining student motivation to write, an essential part of quality writing instruction in K-12 schools is omitted from the research.

In conclusion, great strides have been made since Pajares's (1992) seminal work on teacher beliefs and Pajares's (2003) review of self-efficacy in writing. In our systematic review, which serves as an update of this work, we found that writing methods courses and professional development can increase teacher self-efficacy for writing. The body of research also concludes strongly that writing self-efficacy is difficult to measure and found that many measures did not demonstrate reliable scores prior to use in research studies. Moreover, we found that results were inconsistent across studies, likely indicating that some key variables are not included in the studies. Future research needs to focus on these areas of concern related to reliability, including more variables in the study designs, and include student outcome measures.

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<p style="text-align: center;">**Appendix A**</p>

Study	Sample	SE Construct	Data collection methods	Intervention	Intervention Successful?
Assaf et al., 2016	6 INST	Writing Instruction	Observations, Interviews	One-week residential writing institute	Yes
Aydin, 2019*	94 PST for quant; 39 PST for qual	Writing	Writing Self-Efficacy Scale; Interviews	Undergraduate program in language teaching (4 years)	Yes
Ciampa & Gallagher, 2018	127 Canadian PST; 47 American PST	Writing Instruction	Teachers' Sense of Efficacy for Literacy Instruction	15-20 Week literacy methods course	No
Collet, 2017*	4 INST	Writing Instruction	Observations, Interviews	"Lesson Study" – Practice-based professional learning	Yes
Dempsey et al., 2009	109 PST	Writing Instruction	Unnamed Researcher Created Survey	Online tool for building writing assessment skills & SE	Yes
Dierking & Fox, 2013	8 INST	Writing Instruction	Interviews	Professional development sessions using National Writing Project model	Yes
Galligan, 2011	61 INST, 9 INST interviewed	Writing Instruction	Teacher Efficacy Scale for Writing, Observations (Graham et al., 2001), Interviews, Focus Group	Collaborative inquiry training	Yes

A.H. Hall, 2016	22 PST	Writing Instruction	Reflections, written responses	Semester language arts course	Yes
M.D. Hall, 2016	6 INST	Writing Instruction	Teachers' Writing Self-Efficacy Scale, Interviews	One-on-one instructional coaching	Yes
Helfrich & Clark, 2016*	87 PST	Writing Instruction	The Teachers' Sense of Efficacy for Literacy Instruction	Higher quantity of literacy education courses	No
Hodges, 2015*	209 PST	Writing Instruction & Writing	Preservice Teacher Self-Efficacy for Writing Inventory (Researcher created)	Writing intensive college courses	No
Holland, 2016	7 INST	Writing Instruction	Observations, Reflections, Interviews	Two-year long professional development program created by the National Writing Project	Yes
Koster et al., 2017	31 INST	Writing Instruction & Writing	Efficacy Scale for Writing	*C*omprehensive program for upper elementary grade writing	Yes- for Instruction, No- for Writing
Lewis, 2016	PST; *n* unknown	Writing	Writing Self-Assessment Survey (Researcher created)	Writing intensive college course	Yes
Locke et al., 2013	9 INST surveyed, 5 INST interviewed	Writing Instruction & Writing	Teachers as Writers: Pre- & Post- Self-efficacy questionnaire (Researcher created), Interviews	Writing Workshops	Yes

				Half day workshop on writing	
Marculitis, 2017*	6 INST	Writing Instruction	Observations, Interviews	instruction; Weekly PLC meetings	Yes
Murphy, 2012	6 INST	Writing Instruction	Interviews, Focus groups	PLCs & membership of the leadership/academic team	Yes
Oh, 2011*	9 PST	Writing Instruction	Teacher Sense of Efficacy Scale; Teacher Efficacy Sources Inventory	Summer course & elementary school field placement	Yes
Özüdogru & Çakır, 2020	36 PST, 3 Masters students	Writing	Writing Self-Efficacy Perceptions Scale	GoAnimate tool to create digital stories	Yes
Saine & West, 2017	36 PST	Writing Instruction	Observations, Pre- & post-experience surveys (Researcher created)	Used Edmodo to give feedback on high school students' papers	Yes
Troia et al., 2013	6 INST	Writing Instruction	Teacher Efficacy Scale for Writing; Interviews	Intensive writing instruction professional development	No
Wasserman, 2009	24 PST	Writing Instruction	Observations, Unstructured self-report surveys detailing implementation of lessons (Researcher created), Reflections, Interviews	Literacy course with service learning	Yes

* Indicates studies meeting highest quality coding

Note: INST = In-service Teachers; PST= pre-service teaches

Note: We identified the intervention as being successful if the authors provided documentation of significant changes in teachers' self-efficacy as writers or as writing instructor

Coding Matrix
Citation
ID Number
Type of Study: 1 = quantitative; 2 = qualitative; 3 = mixed methods; 4 = conceptual/theoretical
Participants - Teachers
Participant grade level/ years in a teacher prep program
Where were participants located? 1 = Urban; 2 = Rural; 3 = Mixed; 4 = Unknown
How were teachers described in terms of knowledge, experience?
What is the school SES?
What % of the group was female?
Other notes:
Participants - Students
Participant grade level
Where were participants located? 1 = Urban; 2 = Rural; 3 = Mixed; 4 = Unknown
How were students described academically?
What is the students' SES?
What % of the group was female?
Other notes:
Self-Efficacy Construct
How does the article define the construct? (Direct quote with page #)
What theoretical framework are they using to define the construct?
Is self-efficacy measured as a 1 = association; 2 = cause; 3 = effect of the intervention
What other constructs were measured?
How was self-efficacy measured 1= self-report; 2 = teacher/parent report; 3 = published measure; 4 = study specific measure; 5 = observations (describe)
Other notes:
Study Design

List the research questions, as written in the article.
Were before/after measures used? 1= yes; 2 = no
Was a control group used? 1 = yes; 2 = no
Describe the different groups
What was the setting of the study? 1 = in class; 2 = in school but outside of class; 3 = clinic; 4 = homebased; 5 = summer program; 6 = other
How were students/teachers evaluated 1= individual; 2 = small group; 3 = full class; 4 = school wide; 5 = district wide; 6 = other (specify)
What was the research design? 1= random; 2 = quasi random; 3 = nonrandom
Other notes:
Intervention
Describe the intervention (be sure to include study purpose/goal)
Could it be argued that the intervention supported Teacher Self-efficacy (Efficacy and Challenge)?
Duration of the study 1 = 1 day or less; 2 = one week or less; 3 = one month or less; 4 = one marking period or less; 5 = one semester/summer or less; 6 = one school year or less; 7 = more than one school year (specify)
Other notes:
Results
What does the study indicate about self-efficacy?
What gaps in the field's knowledge of self-efficacy still exist?
Other notes: