



Collective Teacher Efficacy: A Critical Review of Education's Top Influence

T.J. Hoogsteen

Independent Scholar

ABSTRACT

Statements claiming that efforts of policy makers, system and school leaders, and staff developments toward education reforms might be better served by strategically and intentionally considering how to foster collective efficacy throughout the conceptualization, design, delivery, and assessment of change initiatives (Donohoo, 2018, p. 340) require continued attempts to provide critical reviews of the available literature, as does this review. Furthermore, Donohoo (2018) discussed the need for reviews of research to examine what is known about the causal directions amongst the outcomes of collective efficacy, and the current article does this as well. This is especially important and timely considering that collective teacher efficacy (CTE) is regarded by many as the top influence on student achievement. This review undertakes an examination of articles related to CTE and achievement, leadership, teacher outcomes, and professional learning communities. It draws attention to important future directions for collective efficacy research as well as valuable insights for school and district leaders responsible for determining school and system priorities.

Key Words: Collective Teacher Efficacy, Consequences of Collective Teacher Efficacy, Sources of Collective Teacher Efficacy, Directionality of Collective Teacher Efficacy.

INTRODUCTION

A great challenge for researchers studying schools is to identify how school organizations contribute to students' academic success. Schools differ in the impact they have on students and their achievement. Thus, identifying school characteristics associated with differences in student achievement is important to the development of effective schools (Goddard et al., 2000). Synonymous statements such as those above can be found appearing prominently in educational administration and leadership books and articles. However, this particular excerpt is paraphrased from a seminal article related to the social cognitive theory concept of collective teacher efficacy (CTE). CTE was originally conceptualized by Albert Bandura in 1993 and derived from his theory of self-efficacy, which was first formed in 1977. Bandura contended that collective efficacy is a powerful construct that is associated with student achievement (Bandura, 1993).

Often referred to as collective efficacy, perceived collective efficacy, teacher collective efficacy (TCE), collective teacher efficacy, or just CTE, the terms have been treated as synonymous in the concept's literature base. The same can be said for the several related definitions. An early definition

of the concept states that collective efficacy is the perceptions of teachers in a school that the efforts of the faculty as a whole will have a positive effect on students (Goddard et al., 2000, p. 480). Another well-known definition refers to CTE as the collective perception that teachers in a given school make an educational difference to their students over and above the educational impact of their homes and communities (Tschannen-Moran & Barr, 2004, p. 190).

The early years following its inception saw scholars lamenting the lack of research related to collective efficacy. For example, Bandura (1997) noted that even though collective efficacy is recognized to be highly important to a full understanding of organization functioning, it has been the subject of minimal research. Furthermore, Goddard (2001) cites the relationship between CTE and student achievement while referring to collective efficacy as a “neglected construct” in the study of schools and achievement. Since this time, CTE has become a highly studied area with many peer-reviewed articles and theses related to the link between student achievement and CTE, the connection between professional learning communities and collective efficacy, and the association between school leadership and CTE. Even with a developing literature base and understanding of the concept’s relationship to organizational functioning, it was Hattie (2016) that had arguably the greatest impact on attention paid to collective efficacy. It was then that collective teacher efficacy was positioned as the number one influence on student achievement with an effect factor of 1.57.

As Loughland and Ryan (2020) note, with this declaration comes an uncritical adoption of the collective efficacy bandwagon when effect sizes are used in support of professional learning consultancies that are motivated by profit. In fact, very few studies challenge the canonical claims made in collective efficacy articles and books. A pattern in the literature base of CTE is that if results do not support or align with previous findings, authors have often attempted to explain away the discrepancy instead of delving further into the inconsistency, while others have missed opportunities to synthesize and integrate findings into subsequent studies and writing.

A recent literature review and conceptual analysis, Hoogsteen (2020), however, attempted to challenge the accepted theory of action of collective efficacy, that is, expectations influence effort and effort influences achievement (Donohoo & Katz, 2017). Hoogsteen (2020) also aimed to explore bi-directionality of collective efficacy, but did not adequately address the issue. Regardless, the aforementioned article illuminated the issue of the uncritical adoption of the CTE literature canon, as did Loughland and Ryan (2020), and endeavored to create a more holistic view of the role collective efficacy plays in student achievement and school improvement.

Donohoo (2018) espoused the need for future reviews to examine what is known about the causal directions amongst the outcomes of collective efficacy, the purpose of this review and synthesis article is to do just that. Moreover, statements claiming that efforts of policy makers, system and school leaders, and staff developments toward education reforms might be better served by strategically and intentionally considering how to foster collective efficacy throughout the conceptualization, design, delivery, and assessment of change initiatives (Donohoo, 2018, p. 340) requires a continued attempt to provide critical reviews of the literature as did Hoogsteen (2020). This evaluation of the state of the research related to CTE will also strive to bring clarity to the claims that collective efficacy is the top influence on student achievement and school leaders should aim to foster collective efficacy in order to improve their schools. To achieve this, an examination of the concept of bi-directionality as it relates to collective teacher efficacy, an investigation of some

unchallenged claims made in relation to the sources of collective efficacy, and finally, an exploration and synthesis of claims about the relationship between CTE and student achievement as determined through meta-analysis will be undertaken.

BI-DIRECTIONALITY OF COLLECTIVE TEACHER EFFICACY

The concept of bi-directionality as it relates to collective teacher efficacy is illustrated in Tschannen-Moran & Barr (2004) when they state that there is a reciprocal relationship between collective teacher efficacy and student achievement. The relationship is such that the school environment can affect teachers' belief in their collective efficacy to improve student achievement and increased student achievement can increase teachers' sense of collective efficacy (p. 196). Eells (2011) proffers a similar explanation when she notes that CTE influences cultural norms when belief leads to action, and cultural norms influence CTE when action transforms belief (p. 65). In fact, inquiry into the directionality of collective efficacy can be found in oft-studied areas linked to CTE, student achievement, teacher outcomes, leadership, and professional learning communities. It should be noted, definitive evidence regarding directionality has not been found.

Bi-directionality and Student Achievement

In her recent study, Donohoo (2018), notes that caution should be taken regarding the directionality of included variables because causal direction was determined in advance. This is the case in many studies, and in many instances conclusions are drawn that can be misleading. For example, both Bandura (1993) and Goddard (2001) investigated and confirmed the link between collective teacher efficacy and student achievement, however, in both cases achievement was measured prior to CTE. This in turn, has contributed to conclusions such as those by Goddard et al. (2000) that one way for school administrators to improve student achievement is by working to increase the collective efficacy beliefs of their faculties. Comparable conclusions have been drawn in Goddard et al. (2004) where they assert that it is important to understand how schools can be organized to foster collective efficacy beliefs, and Tschannen-Moran and Barr (2004) that student achievement depends upon the collective belief that the teachers in that building can improve student achievement. Considering when each variable was measured, if anything, Bandura (1993) and Goddard (2001) show the relationship between prior achievement, or mastery, and collective efficacy, not that collective efficacy leads to achievement.

Eells (2011), a landmark meta-analysis studying the link between collective efficacy and student achievement, sought to resolve the issue of timing associated with the measurement of CTE and achievement. The meta-analysis included 26 studies, and out of those, nine measured achievement at some point after CTE, while ten used achievement scores from prior to the time when CTE was measured, and the final seven did not specifically report the timing of the measures. The results indicated that the effect size for the studies which measured CTE before achievement was 0.626, while the studies that reported achievement before CTE or did not describe the timing of the variables were lower with effect sizes of 0.565, and 0.599, respectively. While this may seem to serve as evidence that collective efficacy is more predictive of achievement than the reverse, Eells (2011) also notes correlation is not sufficient to determine causation and longitudinal studies examining year to year changes in CTE, achievement, and school contextual variables may reveal patterns that are not evident in short-term research. For example, if the studies which measured CTE prior to achievement had also been able to show an increase in achievement from the year

before, this result would provide more evidence and a better argument that collective efficacy leads to achievement.

Two later studies attended to the lack of longitudinal studies relevant to CTE and achievement, at least somewhat. The first, Goddard et al. (2015), collected survey data on instructional leadership and collective efficacy during the 2008-2009 school year and also drew upon achievement data from the 2008-2009 and 2009-2010 school years. One of their hypotheses was that instructional leadership and teacher collaboration are positively and significantly related to student achievement through their effects on collective efficacy beliefs. They concluded all of their hypotheses were confirmed. At first glance, their data collection methods and conclusions may seem to solve the issues of directionality, but, a closer look shows that their results do not indicate the timing of the administration of CTE surveys in relation to the first year of achievement data and it was not specified whether or not there was a difference in level of achievement between the first year and second year of the study. Because of this, it should be impossible to conclude that instructional leadership and teacher collaboration impact collective efficacy beliefs *which in turn* effect student achievement even if it does demonstrate a relationship between the variables.

The second study, conducted by Goddard et al. (2017), involved collecting seven years' worth of student achievement data from a school district that demonstrated sustained progress in raising student achievement along with closing achievement gaps among diverse populations. Their results indicated that the stronger the sense of collective efficacy, the higher the overall levels of mathematics achievement and the lower the disadvantage for minority students. But again, the study does not explicitly state whether or not CTE was measured at any time prior to achievement, and whether or not CTE was measured yearly or only once after the achievement measures. The authors did, however, acknowledge that causality could not be claimed. Despite this claim, they still went on to conclude, similar to those mentioned earlier, that since collective efficacy beliefs are important to reducing achievement gaps a key question is how beliefs may be strengthened and sustained.

Bi-directionality and Consequences of Collective Efficacy

Often termed as the consequences of collective efficacy, these are productive patterns of behavior that are the result, or outcome, of teachers' collective beliefs. Consequences which are often associated with the strength of efficacy beliefs are, in no particular order, putting forth greater effort and persistence, trying new teaching approaches or innovation, conveying high expectations to students, fostering learner autonomy, decreasing disruptive behavior, increased commitment, and enhanced parental involvement (Donohoo, 2017). The current article, because of the availability of articles for review, will focus on trying new teaching approaches, and decreasing disruptive behavior.

Donohoo (2017) contends that teachers are more accepting of change and more likely to try new teaching approaches when efficacy is high. School actions such as implementation of an initiative, school-wide approach to learning, or innovation fall into this category. Donohoo (2018) cites two articles in this area of outcome, Tschannen-Moran (2001) and Haworth et al. (2015), and reported their findings. Tschannen-Moran (2001) found that implementation of a conflict management program combined with curriculum integration was positively related to CTE whereas the

study conducted by Haworth et al. (2015) observed that collective efficacy had a positive influence on a school-wide approach to teaching English Language Learners.

However, a closer examination of each article shows that while Tschannen-Moran (2001) states implementation of a conflict management program was positively related to collective efficacy (p. 27) the article does not provide further details. Furthermore, CTE was measured following the implementation of the conflict management initiative. Inferences about directionality, at least in terms of collective efficacy having a causal influence on implementation cannot be made. On the other hand, Haworth et al. (2015) was an exploratory qualitative study of two schools with a large proportion of English Language Learners. Although conclusions were drawn that collective efficacy influenced a whole-school approach to learning, it can be argued that the results of the interviews did not detail beliefs of teachers. Instead the interviews described teachers feeling a sense of belonging to the school and being supported through school structures, ongoing teacher learning, and collaboration.

A recent article by Schwabsky et al. (2020) hypothesized that collective teacher efficacy, academic press, and faculty trust, three aspects of academic optimism (AO), would be significantly related to school innovation. A first study exploring the relationship of AO to school innovation, the model the authors proposed showed a strong link between CTE and school innovation. Despite the reported connection, the study is another case where the surveys used to measure the variables were administered after the fact and directionality of the variables was pre-determined. In addition to the lack of definitive evidence showing that high levels of CTE leads teachers to be more accepting of change and more receptive to trying new approaches, Wheatley (2002) raises doubts about the importance of high teacher efficacy as it applies to organizational change. He argues that teachers perceptions of inefficacy may actually have important benefits for teacher learning and educational reform.

Student discipline, problem behavior, and exclusions have also been identified as an outcome of collective efficacy. More specifically, if collective teacher efficacy is high, student discipline problems will be low, indicating an inverse relationship. Sørli and Tersheim (2011) confirmed the relationship between CTE and student discipline issues, and concluded that raising collective beliefs would be an approach to intervention for student behavior problems. Their study was a longitudinal design with surveys and student behavior data collected two times, with data collecting occurring six months apart. Their findings indicated that as CTE increased, student behavior improved and vice-versa, thus suggesting a reciprocal relationship between the constructs.

Another study from the same year, Gibbs and Powell (2011), again confirmed the relationship between CTE and student behavior, but their findings were more nuanced. They note that collective efficacy is not a unitary construct and teacher efficacy does not necessarily transfer from one domain to another. Wheatley (2002) draws attention to this by stating that efficacy beliefs are task and context-specific constructs. Examples in the literature that support this are Klassen (2010), where he found efficacy for instruction did not necessarily mediate stress from workload, and Tschannen-Moran and Barr (2004) where teachers' CTE and subsequent student achievement was higher in subject areas teachers had received more training. Furthermore, while associations between teacher beliefs and student behavior have been found, neither study examined school characteristics such as leadership style, the presence of collaboration, or professional learning

opportunities, especially in relation to school discipline. With that said, directionality or causation cannot be determined, because the origin of the beliefs cannot be ascertained.

Bi-directionality and Leadership

An early study resolving to shed light on the antecedents of collective efficacy, Dussault et al. (2008), worked from the assumption that leadership can influence collective efficacy. Their postulation was based on earlier ideas about the importance of the principal's role in a school and the value of coaching in the development of athletes' efficacy beliefs. The authors concluded that principals' leadership behavior is linked to teachers' collective efficacy. This finding has been replicated in Cansoy (2020). Similar results have also been published in Goddard et al. (2015), as they deduced that leaders have tremendous potential to influence the collective work and beliefs of teachers in their schools (p. 527). However, when it comes to the issue of directionality and leadership, it is the relationship between leadership, self-efficacy, and collective efficacy that will be discussed here.

Studies such as Demir (2008), Cansoy and Parlar (2017) confirmed the relationship between leadership and collective efficacy, but they also found that teachers' self-efficacy was positively related to their collective efficacy beliefs. Demir (2008) found that self-efficacy moderated the relationship between leadership and CTE. In other words, the directionality of the relationship was leadership->self-efficacy->collective teacher efficacy. This finding aligns with Bandura's (1997) contention that collective efficacy is rooted in self-efficacy. Conversely, Kurt et al. (2011), tested a model of the relationship between the same three variables but ascertained that collective teacher efficacy mediated the relationship between leadership and self-efficacy. That is to say, leadership->collective teacher efficacy->self-efficacy.

Synthesizing those two results, consequently has led to the conclusion by Cansoy and Parlar (2017) that there is a reciprocal causal relationship between self-efficacy and collective efficacy (p. 555). This conclusion does not come without caution though. Again, these studies are correlational, with the directionality of the variables determined in advance. As Cansoy and Parlar (2017) state in their study, there was no manipulation of the variables and relationships were assumed to be causal after the fact. The one-time data collection in these studies presents the limitation of only measuring the relationship between self-efficacy and collective efficacy at one point in time and does not measure changes in either variable. Furthermore, the studies' data were confined to self-report surveys, and as Cansoy and Parlar (2017) admit, respondents' appraisals of their collective efficacy may be highly influenced by their self-efficacy, particularly those in key managerial and leadership roles. Currently, at best, one can claim that self-efficacy and collective teacher efficacy co-vary, meaning when one is strong, so is the other, and vice-versa.

Bi-directionality and Professional Learning Communities

Professional learning communities (PLC) and their connection to CTE has also been studied. Much has been written on the relationship between PLCs, collective efficacy, and student learning, but arising out of this sect of the literature is the issue of directionality between professional learning communities and collective efficacy. That is, do PLCs help develop CTE? Is high CTE predictive of PLC implementation? Or does the research related to PLCs and CTE support the social cognitive theory concept of reciprocal causality? This final subsection concerning bi-directionality will delve further into this topic.

In their study, Voelkel and Chrispeels (2017) examined the association between professional learning communities and teacher collective efficacy, and provide a review of the literature regarding the directionality of the relationship. They note, as will be restated here, that studies have been conducted that conclude PLC implementation is predictive of collective efficacy, while others show that CTE is predictive of PLC implementation. For example, a study by Gray and Summers (2015) determined that the former was the case, while others such as Lee et al. (2011) and Goddard et al. (2015) noted the latter outcome. Out of these cases, Voelkel and Chrispeels (2017) provide what is likely the most emphatic findings on the topic. They state that there is a highly positive correlation between PLC implementation and teacher collective efficacy, and higher levels of perceived implementation of PLC variables are predictive of high levels of CTE. They asserted that their findings suggest PLCs are predictive of collective efficacy, and not the reverse (p. 16).

To explain their results, Voelkel and Chrispeels (2017) cite the maturity of PLC implementation as being the reason behind their findings. The school district where they performed the study had been using PLCs as their primary reform strategy for five years at the time of data collection. Also, to align with accepted thought in social cognitive theory, they proffer that there is "most likely a reciprocal relationship between the two constructs" (p. 17). As is the case with the other areas noted in the previous subsections, there are legitimate limitations to the claims about directionality. First of all, the studies were all based on one-time data collections measuring perceptions of PLC implementation and perceptions of CTE, with both variables being measured at the same time. Second of all, no changes over time in either variable have been measured in order to better understand the relationship. Finally, with the results, similar to the rest of the literature studying directionality of collective efficacy, the studies are correlational and only can conclude that the two variables co-vary.

SUMMARY OF BI-DIRECTIONALITY AND COLLECTIVE TEACHER EFFICACY

As noted in the preamble to this section, conclusive evidence has not been found regarding the directionality of collective efficacy, no matter the area of study relating to CTE. Differing results and/or inconsistencies because of study methodology and timing of data collection have occurred. Even so, what has often happened is that researchers have made strong conclusions that are only partially supported because of the correlational nature of the studies, and the inconsistencies have led them to theorize and infer about reasons for their results so that they align with social cognitive theory. With that said, school and district leaders as well as policy makers should take a cautious approach when seeking to develop collective teacher efficacy as a primary strategy to increase achievement, improve outcomes such as innovation and behavior management, implement professional learning communities, and the other school-related outcomes discussed in this section.

SOURCES OF COLLECTIVE EFFICACY

A lot of research (Bandura, 1997; Goddard et al., 2000; Goddard, 2001; Goddard et al., 2004; Tschannen-Moran and Barr, 2004) has included and been completed on the sources and outcomes, or consequences, of collective teacher efficacy. Thus, an exhaustive review will not be completed. However, the background literature will be explored where required. Just like bi-directionality, the research in these areas has produced strong conclusions, and just like the work on bi-directionality, there have been conflicting results which can raise questions about the strength of said claims. The following is an inquiry and examination into what is known about the sources and outcomes of CTE.

There are four sources which shape collective efficacy that can be found throughout the literature. They are, in order of power of influence, mastery experiences, vicarious experiences, social persuasion, and affective states (Donohoo, 2017). Not only are mastery experiences thought to be the strongest influence on collective efficacy, it is also the source that has had the most data collected on its impact. A first study to measure its purported power, Goddard (2001) noted that mastery experiences, operationalized as previous school achievement, explained nearly two-thirds of the variance of CTE between schools (p.474). The belief that mastery experience based on prior school achievement is the most powerful source in developing collective efficacy has endured, although there have been studies which followed that have reported findings that are not consistent with those aforementioned.

Goddard and Salloum (2011), for example, asked the question of whether or not collective efficacy beliefs are simply a product of prior experience and context. They added, that scholars have in fact considered the query. One such study was performed by Ross et al. (2004). Although they confirmed that prior student achievement was predictive of collective teacher efficacy, they tested two models which both showed that the effects of school processes were greater than prior achievement in predicting CTE. The school processes which had the strongest effects were shared school goals, school-wide collaboration, fit of plans with school needs, and empowering school leadership. The authors explained their results by referencing teachers skepticism of the mandated assessment scores included in their models and concede that prior school achievement is likely to be a stronger predictor of CTE where teachers believe the assessment scores have greater credibility.

A subsequent study by Goddard and Skrla (2006) again confirmed the relationship between prior academic achievement and reports of collective efficacy. In this case, they studied the rate of student placement into gifted programs, faculty ethnic composition, and past academic achievement and found that achievement and context variables accounted for 46% of the variation in collective efficacy beliefs between schools. Around the same time, Adams and Forsyth (2006) published their findings on the sources of efficacy. Referring back to Goddard and Skrla (2006), and their finding regarding context variables, and the pondering by Goddard and Salloum (2011) about whether or not CTE was just a matter of past experience and context, the results in Adams and Forsyth (2006) showed that contextual variables accounted for a significant proportion of the variance in school-level CTE. In particular, socioeconomic status, enabling school structure, and school level influenced a school's level of collective efficacy over and above that of prior achievement.

Not only has the evidence on the impact of mastery experiences in the formation of collective efficacy produced varying results, but what actually constitutes this source of CTE hasn't been completely settled upon. For example, Tschannen-Moran and McMaster (2009) found that an important aspect of developing mastery-related efficacy beliefs involved task-specific implementation experience. Although their study was related to teachers' self-efficacy beliefs, it is often believed that self-efficacy and collective efficacy beliefs form through the same sources. This different way of framing mastery experience, later termed enactive experiences in Goddard et al. (2015), when operationalized as teacher collaboration toward instructional improvement, was found to be a significant predictor of collective teacher efficacy.

While the results from these studies show that mastery experiences are a powerful source of collective efficacy beliefs, just how powerful it is, is not certain. Nor is it completely understood how this source of efficacy takes shape. Not only have school processes and contextual factors been shown to have more influence over a faculty's collective beliefs than mastery experiences, it is not known how much influence the other three sources of efficacy have. For example, although Goddard (2001) found that mastery experiences accounted for nearly two-thirds of the variation in CTE, he stated that in addition to mastery, other factors associated with collective efficacy such as the remaining sources of efficacy-shaping information may be responsible for differences in beliefs between schools.

Even though it is believed that the influence of the other three sources can be ordered as vicarious experiences, verbal persuasion, and affective states, there isn't unequivocal evidence to support this claim. Very few quantitative studies explore the relationship of these sources to CTE. There are, though, two studies on the self-efficacy of teachers, Tschannen-Moran and Woolfolk Hoy (2007) and Tschannen-Moran and McMaster (2009), that found verbal persuasion could be effective in developing efficacy beliefs. While evidence does exist, many of the claims regarding the power of the sources of collective efficacy need to be investigated further to be truly substantiated.

COLLECTIVE TEACHER EFFICACY, STUDENT ACHIEVEMENT, AND META-ANALYSIS

Just like the correlational studies that illustrate the relationship between student achievement and collective efficacy, meta-analysis is another form of quantitative research that has an impact in the way collective efficacy is viewed among educational researchers and practitioners. Likely the most influential meta-analysis as it pertains to CTE was completed by John Hattie, where he placed collective efficacy atop of the list of influences on student achievement with an effect factor of 1.57 (Donohoo et al., 2018). In his book, Hattie (2009), uses a standardized effect size, where growth student growth of 0.4 standard deviations is equal to one year's worth of learning. Wiliam (2016), though, states that Hattie's interpretation of the standardized effect size is incorrect (p. 82).

One reason for the misinterpretation of the effect size is an error due to age dependence, in this case, the standard deviation of achievement of older students tends to be greater than that for younger students. For example, variation of annual growth in standard deviations is about 1.5 for 6 year-olds, while students in the 9-11 age range is around the 0.4 mark, and 16 year-olds is around 0.2 (Wiliam, 2016). If the standardized effect size from Hattie (2009) is accurate that would mean if a faculty's collective efficacy is high, students who are six can be expected to make one year's worth of progress, 9-11 year-olds would make almost four years' worth of progress, and sixteen-year-olds would make over seven years of progress in one year. As Wiliam (2016) notes when referring to the 1.44 effect size given to self-report grades, but as the numbers are similar the statement still applies, for six-year-olds, such an effect size is plausible, but in the context of students in high school, it is most definitely not.

Another criticism of meta-analysis is, as Wrigley (2018) writes, a problem commonly referred to as mixing *apples and oranges*, and he further notes that when evidence is reduced to a mean effect size, the individual (person or event) is shut out, complexity is lost, and values are erased. In other words, context is not considered. The effect size attributed to CTE in Hattie (2016) is likely subject to these same criticisms. However, the original meta-analysis, Eells (2011), upon which Hattie's

effect size of 1.57 was based (Donohoo et al., 2018), disaggregated the effect of collective efficacy in different contexts.

Eells (2011) disaggregated the effect sizes among university affiliation. Research done at Ohio State produced an average effect size 0.676, University of Alabama studies had an average effect size of 0.629, and studies completed at The College of William and Mary had an average effect of 0.457. She also distinguished between the type of measure used to determine levels of CTE. Studies that used the long version of the Collective Efficacy Scale had an effect size of .605, the short form produced an effect size of 0.645, those that used the Collective Efficacy belief scale had an average effect of 0.464, and studies that used a different measure had an effect size of .455. As mentioned earlier, Eells (2011) also made the distinction between studies that measured CTE before achievement (0.626), those that measured efficacy beliefs afterward (0.565 or .608 with an outlier removed), and studies that didn't indicate the timing of the measurements (0.599).

In terms of a standardized effect size, the quantifications in Eells (2011) are more realistic and illustrate a more robust picture, but as Wiliam (2016) argues, at this time meta-analysis is not a suitable technique for summarizing the effectiveness of different approaches to improving student learning. He further contends that leaders who rely on meta-analysis to identify priorities for the development of those they lead are likely to spend a great deal of time helping their teachers improve aspects of their practice that do not benefit students (p. 97).

IMPLICATIONS FOR FUTURE RESEARCH AND SCHOOL LEADERS

Research concerning collective teacher efficacy has produced strong conclusions such as those previously mentioned by Goddard et al. (2000) that one way for school administrators to improve student achievement is by working to increase the collective efficacy beliefs of their faculties, and Tschannen-Moran and Barr (2004) that student achievement depends upon the collective belief that the teachers in that building can improve student achievement. Donohoo (2018) also contains a similar conclusion, that efforts of policy makers, system and school leaders, and staff developments toward education reforms might be better served by strategically and intentionally considering how to foster collective efficacy throughout the conceptualization, design, delivery, and assessment of change initiatives.

These conclusions, while buoyed by a large and ever growing body of evidence, are not supported by definitive findings. The correlational nature of the studies can only demonstrate relationships between CTE and achievement, consequences, leadership, or professional learning communities. As Eells (2011) states correlation is not enough to determine causation. Furthermore, social cognitive theory of which collective efficacy is part, has shown to be just that, theory. Findings related to the sources of collective efficacy have shown that the knowledge base is still incomplete. There is still more to learn about how much each of the four sources contributes to teacher efficacy and also what constitutes the sources of efficacy. Directionality of collective efficacy also needs to be confirmed, that is, collective efficacy as causal, vice versa, or the product of reciprocal causality needs to be proven. Future research should aim to fill these voids if the theory is to be completely validated.

Finally, although results of meta-analysis have led collective efficacy to be named the top influence on student achievement, this review has shown that meta-analyses may not be the most reliable format to, especially as it relates to CTE, make this claim. In contrast to the comments by Donohoo

(2018) that policy makers, system, and school leaders should aim to develop collective efficacy throughout reforms, maybe in light of everything presented in this review, school and system leaders should instead take heed to the words of Wiliam (2016) and not put a heavy emphasis on meta-analysis to identify priorities for the development of teachers. In doing so they risk spending a great deal of time helping teachers improve aspects of their practice that do not benefit students.

References

- Adams, C., & Forsyth, P. (2006). Proximate sources of collective teacher efficacy. *Journal of Educational Administration*, 44(6), 625-642.
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, 28(2), 117-148.
- Bandura, A. (1997). *Self-Efficacy: The exercise of control*. New York, NY: W.H. Freeman and Company.
- Cansoy, R. (2020). Transformational leadership: Predictor of collective teacher efficacy. *Sakarya University Journal of Education*, 10(1), 90-103.
- Cansoy, R., & Parlar, H. (2017). Examining the relationship between school principals' instructional leadership behaviours, teacher self-efficacy, and collective teacher efficacy. *International Journal of Educational Management*, 32(4), 550-567.
- Demir, K. (2008). Transformational leadership and collective efficacy: The moderating roles of collaborative culture and teachers' self-efficacy. *Eurasian Journal of Educational Research*, 33, 93-112.
- Dussault, M., Payette, D., & LeRoux, M. (2008). Principals' transformational leadership and teachers' collective efficacy. *Psychological Reports*, 102, 401-410.
- Donohoo, J. (2017). *Collective efficacy: How educators' beliefs impact student learning*. Thousand Oaks, CA: Corwin.
- Donohoo, J. (2018). Collective teacher efficacy research: Productive patterns of behaviour and other positive consequences. *Journal of Educational Change*, 19(3), 323-345.
- Donohoo, J., Hattie, J., & Eells, R. (2018). The power of collective efficacy. *Educational Leadership*, 75(6), 40-44.
- Donohoo, J., & Katz, S. (2017). When teachers believe, students achieve. *The Learning Professional*, 38(6), 20-27.
- Eells, Rachel J. 2011. Meta-analysis of the relationship between collective teacher efficacy and student achievement. Unpublished doctoral dissertation. Loyola University of Chicago.
- Goddard, R. (2001). Collective efficacy: A neglected construct in the study of schools and student achievement. *Journal of Educational Psychology*, 93(3), 467-476.
- Goddard, R., Goddard, Y., Kim, E., & Miller, R. (2015). A theoretical and empirical analysis of the roles of instructional leadership, teacher collaboration, and collective efficacy beliefs in support of student learning. *American Journal of Education*, 121(4), 501-530.
- Goddard, R., Hoy, W., & Hoy, A. (2000). Collective teacher efficacy: Its meaning, measure, and impact on student achievement. *American Educational Research Journal*, 37(2), 479- 507.
- Goddard, R., Hoy, W., Hoy, A. (2004). Collective efficacy beliefs: Theoretical developments, empirical evidence, and future directions. *Educational Researcher*, 33(3), 3-13.
- Goddard, R. & Salloum, S. (2011). Collective efficacy beliefs, organizational excellence, and leadership. In K.S. Cameron & G. Spreitzer (Eds), *Oxford Handbook for Positive Organizational Scholarship* (pp. 642-650). New York, NY: Oxford University Press.
- Goddard, R. & Skrla, L. (2006). The influence of school social composition on teachers' collective efficacy beliefs. *Educational Administration Quarterly*, 42(2), 216-235.

- Goddard, R., Skrla, L., & Salloum, S. (2017). The role of collective efficacy in closing student achievement gaps: A mixed methods study of school leadership for excellence and Equity. *Journal of Education for Students Placed at Risk*. DOI:10.1080/10824669.2017.1348900
- Gibbs, S., & Powell, B. (2011). Teacher efficacy and pupil behavior: The structure of teachers' individual and collective beliefs and their relationship with numbers of pupils excluded from school. *British Journal of Educational Psychology*. DOI: 10.1111/j.2044-8279.2011.02046.x
- Gray, J., & Summers, R. (2015). International professional learning communities: The role of enabling school structures, trust, and collective efficacy. *The International Education Journal: Comparative Perspectives*, 14(3), 61-75.
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. London: Routledge.
- Haworth, P., McGee, A., & MacIntyre, L. (2015). Building a whole school approach and teacher efficacy with English language learners. *Teachers and Teaching*, 21(2), 164-177.
- Hoogsteen, T. (2020). Collective efficacy: Toward a new narrative of its development and role in achievement. *Palgrave Communications*, 6(2), 1-7.
- Klassen, R. (2010). Teacher stress: The mediating role of collective efficacy beliefs. *The Journal of Educational Research*, 103(5), 342-350.
- Kurt, T., Duyar, I., & Çalik, T. (2012). Are we legitimate yet?: A closer look at the causal relationship among principal leadership, teacher self-efficacy and collective efficacy. *Journal of Management Development*, 31(1), 71-86.
- Lee, J., Zhang, Z., Yin, H. (2011). A multilevel analysis of the impact of a professional learning community, faculty trust in colleagues and collective efficacy on teacher commitment to students. *Teaching and Teacher Education*, 27, 820-830.
- Loughland, T., & Ryan, M. (2020). Beyond the measures: The antecedents of teacher collective efficacy in professional learning. *Professional Development in Education*. Retrieved from: <https://doi.org/10.1080/19415257.2020.1711801>
- Ross, J., Hogaboam-Gray, A., & Gray, P. (2004). Prior student achievement, collaborative school processes, and collective teacher efficacy. *Leadership and Policy in Schools*, 3(3), 163-188.
- Schwabsky, N., Erdogan, U., & Tschannen-Moran, M. (2020). Predicting school innovation: The role of collective efficacy and academic press mediated by faculty trust. *Journal of Educational Administration*, 58(2), 246-262.
- Sørli, M., & Torsheim, T. (2011). Multilevel analysis of the relationship between teacher collective efficacy and problem behaviour in school. *School Effectiveness and School Improvement*, 22(2), 175-191.
- Tschannen-Moran, M. (2001). The effects of a state-wide conflict management initiative in schools. *American Secondary Education*, 29(3), 2-32.
- Tschannen-Moran, M., & Barr, M. (2004). Fostering student learning: The relationship of collective teacher efficacy and student achievement. *Leadership and Policy in Schools*, 3(3), 189-209.
- Tschannen-Moran, M., & Woolfolk Hoy, A. (2007). The differential antecedents of self-efficacy beliefs of novice and experienced teachers. *Teaching and Teacher Education*, 23, 944-956.
- Tschannen-Moran, M., & McMaster, P. (2009). Sources of self-efficacy: Four professional development formats and their relationship to self-efficacy and implementation of a new teaching strategy. *The Elementary School Journal*, 110(2), 228-245.
- Voelkel, R., & Chrispeels, J. (2017). Understanding the link between professional learning communities and teacher collective efficacy. *School Effectiveness and School Improvement*, 1-22.
- Wheatley, K. (2002). The potential benefits of teacher efficacy doubts for educational reform. *Teaching and Teacher Education*, 18, 5-22.
- William, D. (2016). *Leadership for teacher learning: creating a culture where all teachers improve so that all students succeed*. West Palm Beach, FL: Learning Sciences International.

Hoogsteen, T. J. (2020). Collective Teacher Efficacy: A Critical Review of Education's Top Influence. *Advances in Social Sciences Research Journal*, 7(6) 574-586.

Wrigley, T. (2018). The power of 'evidence': Reliable science or a set of blunt tools? *British Educational Research Journal*, 44(3), 359-376