

A Preliminary Meta-Analysis of Teacher Leadership

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Abstract

The major function of teacher leadership is to properly lead and positively influence others to make correct decisions for school and learning effectiveness. The purpose of this article was to investigate the relationship between teacher leadership practiced by school administrations and all teachers and school outcomes. By using quantitative meta-analysis of research reports from different countries, the 12 studies that met our selection criteria were further analyzed. We found a large effect size (.485) for the influence of teacher leadership on school outcomes, including teachers' job satisfaction, organizational culture and climate, and student achievement and motivation. Among them, the majority of the studies ($n = 8$) used transformational leadership as the measure of teacher leadership.

Keywords: Teacher leadership, meta-analysis, transformational leadership, student achievement, school outcomes

1. Introduction

The major function of teacher leadership is to properly lead and positively influence others to make correct decisions for school and learning effectiveness. The study of the teacher as leader faces a major barrier from hierarchical school systems that clearly demarcate roles and responsibilities (Harris, 2003). Focused on teaching and learning, proponents of the notion of teacher leadership claim that being recognized as leaders facilitates teachers' personal growth, which in turn benefits organizational development. Frost and Durrant (2003), for example, suggest that recognition of teachers as leaders has three main benefits: school effectiveness and improvement, teacher morale and retention, and democratic values. Teacher leadership is a "collegial dimension which implies responsibility, mutual accountability and collaboration" (Frost & Durrant, 2003, p. 174). York-Barr and Duke offer the following summary definition of teacher leadership (pp. 287-288):

Teacher leadership is the process by which teachers, individually or collectively, influence their colleagues, principals, and other members of school communities to improve teaching and learning practices with the aim of increased student learning and achievement. Such leadership work involves three intentional development foci: individual development, collaboration or team development, and organizational development.

This article investigates the relationship between teacher leadership practiced by school administrations and all teachers and school outcomes. Using quantitative meta-analysis of research reports from different countries, with the wider goal of assessing whether this practice is in fact able to strengthen student-, teacher-, and school development and performance. After reviewing the conceptual background of the teacher-leadership construct, we outline the methodology of our meta-analysis, then present its findings of the study and discuss their implications.

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2. Relevant Literature

The definition of teacher leadership is elusive. Lambert (2003) relates the concept to the idea of constructive learning, which proposing leadership as the process of construction, inquiry, participation, and reflection that leads to purposeful schooling. For Lambert, teacher leadership is at the heart of learning and “may be understood as reciprocal, purposeful learning in a community” (p. 425). Muijs and Harris (2006) closely link the concept of teacher leadership to that of distributive leadership, insofar as “the power base is diffuse and authority is dispersed within the teaching community” (p. 962). The same authors further define teacher leadership as “purposeful collaboration and co-operation amongst teachers” (p. 963).

Pounder (2006) argues that teacher leaders are likely to exhibit transformational leadership qualities because they are often viewed as exemplary teachers. Based on a review of prior literature and his own research, Ponder divided teacher-leadership development into four waves: with the first confining teacher leadership to formal functions within school hierarchies; the second including the instructional dimension of teaching; and third focusing on a process rather than a positional concept of teacher leadership; and the fourth – Ponder’s own contribution – consisting of transformational classroom leadership.

In short, the most common interpretations of teacher leadership relate to the formal roles of teachers in school management and pedagogy (Muijs & Harris, 2006), and it is clear that the idea of teacher leadership derives mainly from general theories of leadership, adapted to the educational context.

York-Barr and Duke’s (2004) comprehensive review of teacher leadership discuss seven features of the construct: focus, definition, function, people, conditions, preparation, and effects. They argue that the central tenet of teacher leadership aligns with the concept of teacher empowerment as well as the major functions of teaching and learning that allow schools to operate. They recognized four central topics in the teacher-leadership literature: the benefits of teacher engagement; teaching and learning; acknowledgement and rewards for accomplished teachers; and benefits for students. They further suggested that the notion of teacher leadership evolved from three sets of activities: teachers’ formal roles as department heads, their instructional expertise as curriculum leaders, and their status as major creators and re-creators of school culture. As such, the same authors suggested that school culture, relationships, and school structures may all influence teacher leadership, but that relationship building and collaboration is the most frequently mentioned in the literature.

A number of leadership-style measures have been used in the teacher-leadership literature, including transformational and transactional leadership (Avolio, Bass, & Jung, 1999), spiritual leadership (Fry, 2003), the principal mindfulness scale (Hoy & Miskel, 2004), servant leadership (Laub, 1998), invitational leadership (Asbill & Gonzalez, 2000), distributed leadership (Hulpia, Devos, & Rosseel, 2009), value-based leadership (Grag & Krishnan, 2003), and shared leadership (Wood, 2005). Among these, the most popular has been the section on transformational leadership from the Multifactor Leadership Questionnaire (MLQ; Avolio et al., 1999; Bass, 1985). Probably the most well-developed transformational-leadership measure in the literature, it has been tested with various populations worldwide and found to provide reliable and valid results.

On the whole, the teacher-leadership literature is still limited to arguments and rationales regarding exactly what the construct is, rather than the presentation of evidence of its real-world effects. However, a few educational researchers have attempted to determine the effects of teacher leadership on a range of factors including student academic performance (Ahmed & Qazi, 2011), student learning and motivation (Noland & Richards, 2014), teacher self-efficacy (Nir & Kranot, 2006), teacher commitment and satisfaction (Aydin, Sarier, & Uysal, 2013), organizational health (Korkmaz, 2007), organizational culture (Karadag, 2009), and school climate (Black, 2010).

Hardly any meta-analyses of the teacher-leadership literature have hitherto been performed. One of the few (Chin, 2007) examined the extent to which transformational leadership affected school outcomes, based on 21 studies in Taiwan and the United States, and found that its direct effects were significant and positive. Another effort by Aydin, Sarier, and Uysal (2013) investigated the effects of Turkish school principals’

leadership styles on teachers' job satisfaction and organizational commitment, and found large effect sizes (.56, .48, and .55) based on 12 studies. Both of these meta-analyses provided considerable evidence that proper leadership— and especially transformational leadership was an important factor in school effectiveness. In addition, most studies of transformational school leadership have found it to be positively related to educational outcomes including follower satisfaction, motivation, learning, and student performance.

In summary, research on teacher leadership— while continuing to grow in quantity—is highly heterogeneous: lacking a clear definition of its subject, any overarching conceptual framework, and any robust measures. Despite these concerns, it is possible to offer a preliminary meta-analysis of the existing literature in the hope of arriving at implications for practice as well as future directions for research.

3. Method

• Study Selection

To obtain articles for the present study, we conducted searches of the *ERIC*, *Google Scholar*, and *EBSCO* databases in late summer 2015. Using the keyword *teacher leadership* in these searches, we initially identified around 50 articles, of which 12 met our inclusion criteria: (a) the research was written in English and published in a peer-reviewed journal; (b) it was conducted using a quantitative paradigm, with either an experimental or correlational design; (c) it concerned the effects of teacher-leadership behavior on other variables; and (d) the statistical data included the sample size and Pearson *r* or *t* value or F value for calculation of the effect size.

• Procedure

The 12 studies that met our selection criteria are further described in Table 1. Our meta-analyses were conducted by averaging correlation coefficients (the Pearson *r*) as effect sizes. We made these calculations both for the individual studies that were included and for the overall analysis. If two or more effect sizes were generated within the same outcome category, we used the mean effect size. We also used the procedure for weighting effect sizes suggested by Pan (2008) to ensure that all effect sizes were in the form of a common metric. To calculate weighted average correlation coefficients, we adopted the approximation method using Fisher's *Zr* transformation of the correlation coefficient (see Pan, 2008, p. 104), and proceeded as follows: (a) converted each value of *r* to a value of *Z*; (b) multiplied each value of *Z* by the number of participants; (c) summed the values of *nZ*; (d) divided the sum of *nZ* by the total number of participants; and (e) converted *Z* back to *r*.

• Results

The results are reported in Table 1. The average weighted effect size (*r*) for the 12 studies was .485, indicating a large effect of teacher leadership. In all, the target studies provided 13 leadership treatments with a total of 12,931 participants contributing to the present analysis. All studies showed positive, significant effect sizes ranging from .141 to .720. The majority of the studies (*n* = 8) used transformational leadership as the measure of teacher leadership, and the average weighted effect size (*r*) of transformational leadership for seven studies was .460, again indicating a large effect. The 12 studies could be grouped into three broad categories according to type of dependent variable: learning, motivation, and organizational development.

Table 1: Articles Included in the Meta-Analysis

Study	Sample	Interventions	Outcomes	r	p Value
Ahmed & Qazi (2011)	212 Pakistani college students	Transformational leadership	Academic performance	.146	.034
		Transactional leadership	Academic performance	.141	.040
Beauchamp et al. (2014)	2,948 Canadian 8th-10th graders	Transformational leadership	Affective attitudes	.639	< .01
Bostanci (2013)	364 Turkish teachers	Shared leadership	Organizational citizenship	.720	< .05
Calik, et al. (2012)	328 Turkish teachers	Instructional leadership	Teachers' self-efficacy	.330	< .01
Hobbie et al. (2010)	1,225 US teachers	Organizational leadership	Catholic school identity	.510	< .05
Karadag (2009)	359 Turkish teachers	Spiritual leadership	Organizational culture	.445	< .05
Korkmaz (2007)	635 Turkish teachers	Transformational leadership	Job satisfaction	.528	< .01
			Organizational health	.582	< .01
Nir&Kranot (2006)	755 Israeli teachers	Transformational leadership	Job satisfaction	.294	< .01
Noland & Richards (2014)	255 US college students	Transformational leadership	Learning	.690	< .01
			Motivation	.530	< .01
Ross & Gary (2006)	3,024 Canadian elementary teachers	Transformational leadership	Student achievement	.172	< .05
Sagnak (2010)	764 Turkish teachers	Transformational leadership	Ethical climate	.631	< .01
Seritanondh (2013)	480 Thai college students	Teacher leadership	Study method	.670	< .01
			Achievement motivation	.620	< .01

4. Discussion

The main objective of our study was to use a meta-analysis technique to synthesize the results of empirical studies regarding the overall relationship between teacher leadership and school out comes. We found a large effect size (.485) for the influence of teacher leadership on school outcomes, including teachers' job satisfaction, organizational culture and climate, and student achievement and motivation. The statistical results suggest that a high degree of teacher leadership can be seen as an important facilitator of effectiveness and satisfaction as perceived by teachers, and can result in improvements in student achievement. However, we found that the effect of teacher leadership on student achievement was smaller than its effect on other outcome variables. This suggests that teacher-leadership behaviors only explain a small amount of variation in student achievement, in which larger roles may be played by other variables such as learning strategies, methods of content delivery, and contextual factors.

Just over half ($n = 7$) of the studies that met our inclusion criteria used transformational leadership, as identified by the MLQ (Avolio et al., 1999; Bass, 1985), as their index for assessing teacher leadership. The current study's finding of a large effect size (.460) of transformational leadership, based on these seven

studies, is considerably lower than that found by Chin (2007), $r = .707$. This may relate to the current study's much smaller sample size, as compared to Chin's ($n = 21$). Nevertheless, our meta-analysis confirms that transformational leadership remains the most popular leadership measure in the teacher leadership literature—probably as the result of the well-established reliability and validity of the MLQ. However, a wide array of other leadership behaviors has also been addressed in the literature, suggesting that future researchers could develop and validate other leadership measures.

Our findings are consistent with those of other scholars (e.g., Tsai, 2013; York-Barr & Duke, 2004) that teacher-leadership behaviors have a significant impact on either school or student performance. The current study's extension of analysis to six different countries in North America, the Middle East and Asia provides consistent indications that teacher leadership matters in educational institutions.

As school outcomes and teacher leadership are positively and significantly related to each other in all countries where their relationship has so far been examined, we would recommend that training in leadership behaviors should be made a part of professional development for all levels of teachers. Additionally, the findings of the current study indicate that it would be appropriate to place some emphasis on the transformational leadership literature in training courses for school administrators.

There are several salient limits of this meta-analysis. First, it should be noted that the coefficients of correlation between leadership and other dependent variables were calculated based on teachers' perceptions. To the extent that these perceptions were bounded by the surrounding environment (including but not limited to national culture), the use of Pearson correlations could have underestimated or overestimated the relationship between teacher leadership and other variables. Second, as all of the studies included in this meta-analysis used correlational methods, it is recommended that future research incorporate experimental methods and include additional situational factors, in order to provide a more complete picture of how teacher leadership impacts the functioning of schools. Finally, the sample size of this meta-analysis was quite small; nevertheless, the effect sizes it identified were promising, and indicate that more quantitative research is needed to understand the influence of teacher leadership on both student and school performance.

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