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The impact of support on growth in teacher-efficacy: a cross-cultural study

Growth in
teacher-
efficacy

753

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Abstract

Purpose – Perceived support from co-workers and managers is important for many organizational outcomes. However, the benefit of competence support from colleagues and school management on personal teacher efficacy has not been investigated. The purpose of this paper is twofold: first, to investigate the impact of competence support from colleagues and the school management on growth in teacher efficacy and second, to investigate cultural differences (Canada and Sweden).

Design/methodology/approach – The authors administered an inventory measuring support for competence and personal teacher efficacy to over 400 teachers in Canada and Sweden at 27 schools, at two times. Time 1 took place at the first week of a fall semester and Time 2 at the end of the same semester.

Findings – Structural equation modeling revealed that competence support from colleagues predicted growth in teacher efficacy, whereas competence support from school management did not. No differences in these relations emerged between Canadian and Swedish teachers.

Practical implications – The findings have implications for how schools organize teachers in teacher teams so that competence support from co-workers is promoted.

Originality/value – This study is the first cross-cultural study to empirically show that teachers' self-efficacy is significantly benefitted by competence support from their teacher peers.

Keywords Teachers, Cross-cultural study, Co-worker support, Competence support, Teacher efficacy, School management support

Paper type Research paper

Social cognitive theory states that people are self-organizing, proactive and self-regulating, rather than reactive and governed by external events (Bandura, 1986). Self-efficacy expectations regulate whether actions will be taken, how much effort will be expended and how long it will be sustained when facing obstacles (Bandura, 1997). Thus, self-efficacy makes a difference in how people feel and behave, and teachers' self-efficacy is a determinant of teaching behavior and of great importance for teachers (Woolfolk and Hoy, 1990). For instance, self-efficacious teachers recover more quickly and maintain commitment to their goals when setbacks occur (Schwarzer and Hallum, 2008). Self-efficacy is also a key element in the motivation process. For example, high self-efficacy can enhance motivation and help people choose more challenging tasks (Bandura, 1997; Schwarzer, 1992). Self-efficacy makes a difference not only to how people feel and act, but also to how they think, as high self-efficacy helps shape the meaning ascribed to situational characteristics. High self-efficacy predicts better adjustment to one's environment, with lower levels of strain and burnout across various professions (Bandura, 2000), and negative



associations between self-efficacy and burnout has been found for teachers (Betoret, 2009; Ozdemir, 2007). In contrast, low self-efficacy has been linked to depression (Millear, 2013) and anxiety (Yürük, 2011) among workers.

Despite the clear implications of self-efficacy in teachers and the number of empirical studies on the topic, a review by Klassen *et al.* (2011) points out that previous studies are single-country studies that mostly have been carried out in the USA and rarely focus on the associations between principals' leadership. In addition, few investigations have examined teacher efficacy through the lens of competence support. Competence comprises feeling effective and capable of being able to achieve specific outcomes, and feeling masterful in one's actions, as opposed to feeling incompetent and ineffective (Sheldon and Filak, 2008). The need for competence is in self-determination theory thought to be universally relevant within all people and all cultures (Ryan and Deci, 2017). In the current study, work on social cognitive theory and teacher efficacy (Bandura, 2000; Tschannen-Moran *et al.*, 1998) is integrated with competence support from the self-determination theory literature (Ryan and Deci, 2017).

The purpose of the study was to cross-culturally focus on how two important sources of self-efficacy in the school context, namely the teachers' principals and peers, may support growth in teacher efficacy, by examining the competence support at play from the two sources. An inventory measuring support for competence and teacher efficacy at two time points tested which source is most important for predicting growth in teacher efficacy, and whether there are differences between a Canadian and a Swedish school context.

Teacher efficacy

Self-efficacy refers to beliefs about one's ability to perform specific tasks (Bandura, 1997), while teachers' self-efficacy, also called teacher efficacy, has been defined as "teachers' belief or conviction that they can influence how well students learn" (Guskey and Passaro, 1994, p. 4). Teachers' self-efficacy influences teachers in many ways. For example, self-efficacy in teachers has been found to predict higher job satisfaction (e.g. Gilbert *et al.*, 2014; Moe *et al.*, 2010; Wang *et al.*, 2015), lower levels of illness (e.g. Schwerdtfeger *et al.*, 2008), lower levels of depersonalization and quitting intentions (Wang *et al.*, 2015) and higher levels of motivation and performance (Canrinus *et al.*, 2012; Olayiwola, 2011). Teachers' self-efficacy has also been associated with many important student outcomes such as improved achievement and success (Bandura *et al.*, 1996; Klassen *et al.*, 2011; Tschannen-Moran *et al.*, 1998). Thus, it is essential to investigate the sources of teacher efficacy to build a better understanding of how teacher efficacy is formed.

Bandura (1986, 1997) point out that self-efficacy is both domain-specific and situation-specific. Self-efficacy beliefs are only highly valid in specific tasks and situations. The predictive power of self-efficacy is thus weaker when assessed at general levels. Bandura (1997) suggests that the weights given to different types of efficacy information can differ across diverse work domains and has criticized the use of global measures in self-concept, which do not predict behavior in particular situations. Consequently, a lot of the focus of educational and psychological research has been on constructs that are more specific. That is why it is important to measure specific teacher efficacy. However, there are some other difficulties with teacher efficacy instruments. For example, the validity and reliability of existing measures have been questioned and several measures reveal a two-factor structure in factor analysis while it is uncertain what these two factors imply (see e.g. Tschannen-Moran and Hoy, 2001). Furthermore, there have been different views over the clarity in the measuring construct and to what extent efficacy beliefs are transferable across contexts. Thus, researchers have attempted to develop both long, detailed measures and short, general ones to capture the meaning of teacher efficacy. One of the most popular of the teacher efficacy instruments to date is the Teacher Efficacy Scale by Gibson and Dembo (1984), which is a two

factor 30-item scale. As there were inconsistencies in this scale, Hoy and Woolfolk (1993) developed an abbreviated form with ten items (five items measuring personal teaching efficacy and five items measuring general teaching efficacy). They found good reliabilities for both subscales.

Bandura (1997) proposed that self-efficacy beliefs are influenced by four sources: mastery experience, vicarious experiences, verbal persuasions and physiological arousal. The most powerful one of these sources is mastery experience, which for teachers means their actual teaching accomplishments with students, or how they interpret their performances. In relation to vicarious experience, it has been found that behavior modeling is effective for raising self-efficacy (Gist *et al.*, 1989). For a teacher, vicarious experience could be to observe teaching activities performed by another teacher. Tschannen-Moran and McMaster (2009) and Tschannen-Moran and Johnson (2010) have found that various forms of mastery and vicarious experiences have been associated with increased literacy teacher efficacy. However, it is quite uncommon among teachers that they observe each other when they teach. As stated by Hattie (2009), classroom doors are often kept closed and most teachers prefer to have a high level of autonomy in their teaching, with the exception of teacher students. Physiological and emotional states such as anxiety and stress are another source that is believed to influence self-efficacy beliefs (Bandura, 1997). If emotional arousal is interpreted as anxiety, it can decrease teacher efficacy beliefs, whereas it can improve efficacy beliefs when interpreted as excitement about the performance.

Finally, the fourth source of self-efficacy, verbal persuasion, occurs in verbal interactions between colleagues, or with one's superior, about their performances and possible future achievements in and outside the classroom. Verbal persuasions are likely the efficacy source that is most available to teachers. Some research on verbal persuasion and teacher efficacy has found positive relations. For example, Yeung and Watkins (2000) found that verbal persuasion that teachers received during teaching practice was related to their self-efficacy. Furthermore, contextual factors related to verbal persuasion, such as collegial support and principals have also been discussed as possibly important for teachers' self-efficacy (Bursal, 2012; Marzuki *et al.*, 2017). Thus, support from colleagues and school management seems to be important for the development of teacher efficacy. However, competence support seems to be especially important, as well as overlooked in the research on teacher efficacy. Competence support, which is a form of verbal persuasion, is the efficacy source that is the focus of this paper.

Competence support

An environment that provides the workers with optimal challenges, adequate feedback and a supportive climate is regarded as a central factor for self-efficacy (Bandura, 1997). Competence support could be considered as both a form of verbal persuasion and a contextual factor. Competence support refers to job experiences that allow employees to feel capable of being able to achieve specific outcomes and gain mastery over performance when working. For a teacher in a school, competence support could be that their colleagues or the principals help them do a good job in the classroom, for example, by suggesting good school assignments. In fact, support for competence has been associated with self-efficacy in a study by Diseth *et al.* (2012) and more recently principal leadership and leadership style have both been positively related to and predictor of teacher self-efficacy (Fackler and Malmberg, 2016; Sehgal *et al.*, 2017). Participation in a community of practice (i.e. Grossman *et al.*, 2001) in which teachers shared instructional strategies with each other was found to be positively related to efficacy beliefs (Tschannen-Moran and Johnson, 2010). Participation in such groups could be situations where teachers support each other's beliefs in their competences.

Competence support could possibly help teachers interpret their situations in ways that are less detrimental to their self-efficacy. Competence support could come from teacher colleagues, as well as from the school management. This is why it is important to study self-efficacy beliefs in conjunction with competence support from colleagues and school management. It is established that competence support is important for predicting both momentary and longer-term well-being, and thriving, and that daily fluctuations in these needs combine to predict daily fluctuations in well-being (e.g. Sheldon *et al.*, 1996; Reis *et al.*, 2000). Competence support has been shown to have unique main effects upon outcomes such as intrinsic motivation and positive and negative mood (Sheldon and Filak, 2008).

In the context of schools, studies have found that principals are central for improving the teaching and learning through their impact on teachers' practices and self-efficacy (Duyar *et al.*, 2013; Hipp and Bredeson, 1995; Ross and Gray, 2006). Principals can contribute to positive teacher efficacy by giving supervision of instruction, which can improve teaching practices (Duyar *et al.*, 2013). In a recent study, Bellibas and Liu (2017) revealed that principals' proactive involvement in instructional leadership had a positive, direct and significant relationship with teachers' self-efficacy in teaching and student engagement. Bellibas and Liu (2017) found that when principals give teachers support in terms of instructional practice and perceived capacity within several important areas, teachers are more likely to develop increased self-efficacy in incorporating multiple and effective instructional strategies in their teaching, as well as in increasing student motivation toward higher engagement in learning activities. In addition, Holzberger *et al.* (2014) found that teachers have higher self-efficacy when their schools support their intrinsic needs (i.e. autonomy or competence). However, there seems to be a lack of research investigating how competence support from different sources is related to self-efficacy. Furthermore, in the literature on teachers' self-efficacy, there has been an insufficient attention paid to the sources (Klassen *et al.*, 2011).

In this study, it is proposed that providing teachers with support for their competence is positively associated with their self-efficacy. Competence support may help teachers feel more competent, guide them to set more relevant goals, choose to perform more appropriate tasks and perceive situational opportunities and threats in a more positive way that will help them adjust to their environment.

Managers are essential in increasing employees' feelings of competence (e.g. Shamir *et al.*, 1993) and should be important for employees' self-efficacy. For instance, Kovjanici *et al.* (2012) found a positive relationship between managers and self-efficacy, which was mediated by the satisfaction of feeling competent.

Co-workers may also play an important role in nurturing positive employee outcomes. For example, Jungert *et al.* (2013) found that employees perceived greater autonomy support from co-workers than from managers, and that autonomy support was significantly positively related to workers' self-efficacy. Based on the theoretical founding of self-efficacy, it is likely that competence support is even more important. To gain more understanding on how schools may increase teachers' self-efficacy through competence support, this study presents a study over the first half of the school year. Thereby this study complements the increasing body of cross-sectional questionnaire research on teacher self-efficacy and answers the call for more studies on teachers' self-efficacy that focus on the sources of teacher efficacy (Klassen *et al.*, 2011).

Universality

Social cognitive theory postulates that supporting competence is relevant to all humans, which makes it important to assess the relationship between competence support and self-efficacy across cultures. A prior cross-cultural study focused on experienced competence of German and American students (Levesque *et al.*, 2004).

The context of the study

To attempt to test these associations in Canada and Sweden is relevant considering how the two countries differ from each other along Hofstede's (1983) dimensions of national cultures, which are reflected in the education system. The six dimensions are power distance (the degree to which the less powerful members of a society accept and expect that power is distributed unequally and how a society handles inequalities among people), individualism vs collectivism (individualism means a preference for a loosely-knit social framework vs collectivism representing a preference for a tightly-knit framework in society), masculinity vs femininity (masculinity represents a preference for competition, assertiveness and material rewards, and femininity represents a preference for cooperation, modesty and caring), uncertainty avoidance (the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity), long-term orientation vs short-term normative orientation (how a society deals with the challenges of the present and the future) and indulgence vs restraint (how free or suppressing a society is of enjoying life and having fun). Both countries are similar in individualism and power distance; however, they differ significantly on masculinity, which is very relevant for the study of support from peers and management. Hofstede (2001) explains that at the core of this dimension is what motivates people – wanting to be the best (masculine) vs liking what you do (feminine). Sweden scores extremely low on the masculinity dimension, which indicates that Swedish culture is rather based on the values of caring for others, quality of life and cooperation and Canada also shows low scores on this dimension. This may be reflected in the way school management and colleagues support teachers in Swedish and Canadian schools. Based on this cultural difference, it could be expected that teachers in Canada would not receive as much competence support from their principals and peers as the Swedish teachers, and that competence support would have a higher importance for Swedish teachers than Canadian teachers. This key difference between the cultural and educational systems of Sweden and Canada makes it interesting to examine the associations between competence support and self-efficacy, in order to establish whether competence support from school management and colleagues have a similar impact on teacher efficacy in an environment that seems to be supportive of autonomy, compared with an environment that focuses mostly on competence. The present study is thus embedded in current research examining the relevance of competence across cultures.

The assumption is that the different sources of support contribute separately and distinctively to personal teacher efficacy. We hypothesized that:

- H1.* Competence support from both colleagues and school management would positively predict growth in teacher efficacy.
- H2.* This competence support would have a higher importance for Swedish teachers than Canadian teachers.

Method*Participants*

In this study, 179 Canadian teachers (156 females and 23 males) and 232 Swedish teachers (153 females and 79 males) participated. The Canadian data were collected at 12 metropolitan elementary schools in Quebec, Canada, at two times. The Swedish data were collected at 15 Swedish elementary schools in five Swedish cities at two times. The data collection resulted in complete responses from 411 teachers. This represents a 65 percent response rate (72 percent in the Canadian sample and 61 percent in the Swedish sample). The mean age of the Canadian teachers was 43.71 and they had been working in their current teacher teams during 5.95 years on average, while the mean age for the Swedish teachers was 44.09 and they had been working in their current teams for

7.30 years on average. All questionnaires were electronically administered to the participants by e-mail, and Qualtrics was used to collect responses to the online surveys. The first data collection took place the first week of a fall semester and the second data collection took place about five months later, at the end of the same semester.

Measures

The same scales were used in Time 1 (at the beginning of a spring semester) and Time 2 (at the end of the same semester). For the Canadian teachers, scales were in French, whereas for the Swedish teachers, scales were in Swedish. All scales were translated with the translation-back-translation method.

Support for competence

Competence support was assessed with eight items that have been adapted from two questionnaires (Williams and Deci, 1996; Williams *et al.*, 1996). Four items referred to support from school management and were adapted to measure how the teachers perceived that their principals are supportive of their competence in their daily work situations. The same four items were used, but the word “principal” had been replaced by the words “closest teacher co-workers” in order to measure competence support from co-workers. The teachers were informed that the questions concerned their perceptions of interactions with their closest colleagues. On a five-point scale (from 1 = strongly disagree to 5 = strongly agree) the teachers indicated whether they agreed with the items. A sample item is “My principal/closest teacher co-workers help me feel able to meet the challenges of performing well in my job.” Internal consistency coefficients for teacher co-worker support ($\alpha = 0.90$) and for principal support ($\alpha = 0.94$) evidenced very good internal consistency.

Teacher efficacy

The five-item Personal Teacher Efficacy Scale, developed by Hoy and Woolfolk (1993), was used to measure teacher efficacy. The reason for choosing this subscale is that it is the fruit of consistent work that started with the popular Teacher Efficacy Scale constructed by Gibson and Dembo (1984). This scale has been subject of solid development work from being used in several studies (e.g. Hoy and Woolfolk, 1993; Saklofske *et al.*, 1988; Soodak and Podell, 1993). Scores on the five-item teacher efficacy subscale have been shown to have adequate internal consistency and a one-factor structure in previous research (Hoy and Woolfolk, 1993). Furthermore, the predictive power of self-efficacy is stronger when assessed at specific levels (Bandura, 1997) and the short five-item scale is convenient to use, which are other reasons for using this scale in the current study. A sample item from the scale is “When I really try, I can get through to most difficult students.” The items were slightly adapted so that they would work in both a Swedish and a French–Canadian context.

After testing the measurement model and examining the model fit and all items, two of the items were dropped (Items 2 and 5) in the remaining analyses in order to have a better measurement of personal teacher efficacy. All items were measured on a five-point scale (from 1 = strongly disagree to 5 = strongly agree). Internal consistency coefficients for the scale ($\alpha = 0.87$ at Time 1, $\alpha = 0.83$ at Time 2) evidenced good internal consistency. All questionnaires are attached in the Appendix.

Results

Pearson’s correlations for the total sample are displayed in Table I. Mean scores on teacher co-worker competence support, school management competence support and the teacher efficacy measure at Time 1 and Time 2 for the total sample and the two countries are presented in Table II.

In the structural equation model with both samples, it was found that competence support from co-workers at Time 1 had a significant effect on growth in teachers' self-efficacy one semester later. Competence support from principals was not associated with growth in teachers' self-efficacy. Investigation of the metric invariance of Canadian and Swedish samples showed that there was invariance, which means that the teachers in both countries most likely have interpreted the items in a very similar way. Thus, it was not meaningful to split the sample in two, as the model with both samples speaks for both of them.

The statistical modeling was done in a two-step order (Kline, 2011). In the first step, the measurement models were tested. For teacher efficacy, the model of the variable at both time points were tested and resulted in a good model fit $\chi^2(5) = 8.57, p = 0.13$. Likewise, school management competence support resulted in good model fit $\chi^2(2) = 2.21, p = 0.33$, and co-worker competence support also showed a good model fit $\chi^2(2) = 0.20, p = 0.97$. Finally, all of the latent variables were modeled together as the measurement model of the indicator residuals of teacher efficacy at Time 1 were correlated with teacher efficacy at Time 2, because the same items were used at both time points. This model resulted in a significant $\chi^2, \chi^2(68) = 123.64, p < 0.001$, although the alternative model fit indices indicated that the model had adequate fit, RMSEA = 0.04, CFI = 0.98, SRMR = 0.04. The discrepancies in the χ^2 test between modeling the latent variables on their own compared to modeling them together are probably due to the relatively few degrees of freedom when modeling them separately. When adding the degrees of freedom in relation to the relatively large sample size, the χ^2 test was significant, but probably due to the statistical properties of the χ^2 test. The rationale for modeling the latent variables on their own is based on Kline (2011).

Factor loadings were stable over all models. In addition, the residuals of the teacher efficacy indicators at Time 1 were allowed to be correlated with the teacher efficacy indicators at Time 2, as it would be unrealistic to assume that they should be completely unrelated considering that the same items were used at both time points. The measurement model properties in regard to metric invariance between participants from Canada and Sweden were also tested (see Table III).

The subsequent part of the modeling was to test the structural part of the model, in order to answer the question of how competence support from school management and co-workers affects the growth of teacher efficacy. Figure 1 shows Model 1 that tested growth in teacher efficacy over the two time points. Not surprisingly, the model showed identical fit statistics with the measurement model, $\chi^2(68) = 123.64, p < 0.001$, RMSEA = 0.04, CFI = 0.98, SRMR = 0.04, indicating an overall good fit.

All	1	2	3	4
1. Co-worker competence support	1			
2. School management competence support	0.49**	1		
3. Teacher efficacy Time 1	0.20**	0.25**	1	
4. Teacher efficacy Time 2	0.26**	0.29**	0.72**	1

Notes: * $p < 0.05$; ** $p < 0.001$

Table I.
Correlations among
competence support
and teacher efficacy at
Time 1 and Time 2
for the total sample

	Total sample		Canada		Sweden	
	M	SD	M	SD	M	SD
Co-worker support	3.42	0.86	3.42	0.86	3.79	0.85
School management support	2.96	0.96	2.96	0.96	3.25	1.02
Teacher efficacy Time 1	3.66	0.72	3.66	0.72	3.97	0.58
Teacher efficacy Time 2	3.72	0.65	3.72	0.65	3.97	0.55

Table II.
Descriptive statistics
for competence
support and teacher
efficacy by the total
sample and country

Table III.
Metric invariance
testing between
Canada and Sweden

	χ^2	df	p	$\Delta\chi^2$	CFI	RMSEA	BIC	AIC
Free Te ef	88.42	16	< 0.001		0.90	0.14	4,239.67	4,083.78
Metric Te ef	92.80	20	< 0.001	4.38	0.90	0.13	4,219.64	4,080.15
				$p = 0.357$				
Free CW su	6.29	4	0.178		1.00	0.05	3,801.61	3,704.25
Metric CW su	8.29	7	0.308	2	1.00	0.03	3,785.44	3,700.25
				$p = 0.572$				
Free Man su	2.18	4	0.703		1.00	0.00	3,922.05	3,825.03
Metric Man su	6.20	7	0.517	4.08	1.00	0.00	3,907.94	3,823.05
				$p = 0.253$				
Free Model 1	285.35	142	< 0.001		0.94	0.07	11,905.43	11,510.09
Metric Model 1	294.95	152	< 0.001	9.6	0.94	0.06	11,853.85	11,499.70
				$p = 0.476$				

Notes: Te ef, teacher efficacy; CW su, co-worker competence support; Man su, school management competence support

Co-workers' competence support predicted growth in teacher efficacy while competence support from school management did not result in an effect on growth in teacher efficacy. These results provide partial support for *H1* as only competence support from colleagues positively predicted growth in teacher efficacy. When testing the effect on teacher efficacy for each country separately, the path from co-worker support at Time 1 to self-efficacy at Time 2 resulted in a p -value above 0.10 for both countries. This result indicates that no statistical significant difference between countries were detected and does not provide support for *H2*.

In a nutshell, no difference between the countries were detected in the model. The importance of co-worker competence support in relation to growth in teacher efficacy was clear.

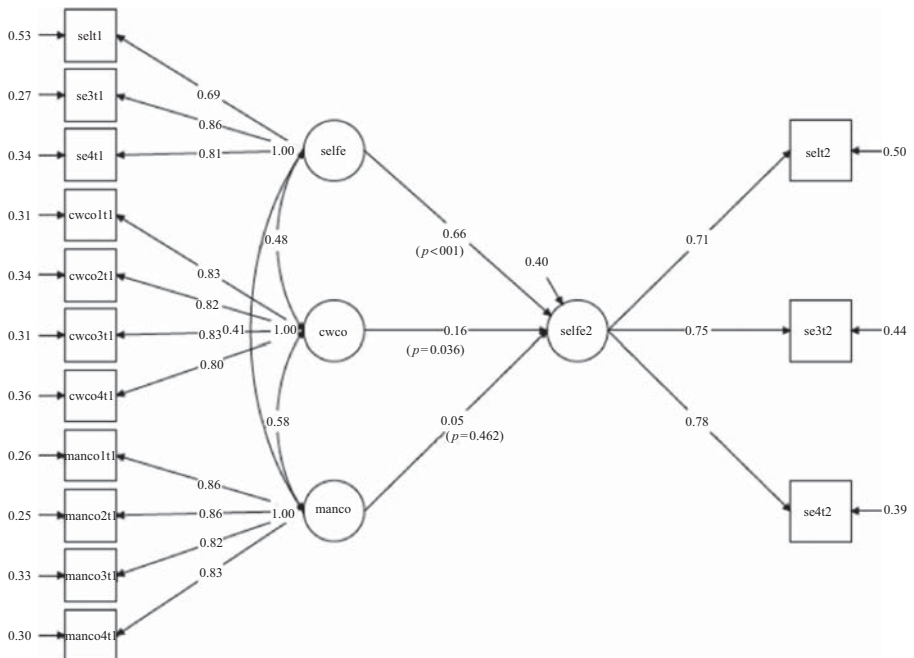


Figure 1.
Model 1 testing
growth in teacher
efficacy (selfe)
over the two time points

Discussion

The present study builds on recent work highlighting the importance of receiving support from peers rather than managers. The fact that we employed a prospective design that spanned the first half of a school year and conducted the study in two separate countries strengthens the suggestion that peer support of competence can have an important impact on helping teachers feel more skilled and able to pursue their teaching goals. Previous research would suggest that improved teacher self-efficacy beliefs should translate into more effective teaching and greater personal adjustment.

This study showed that in a sample of Canadian and Swedish teachers, competence support from colleagues at the beginning of one semester was significantly related to growth in their teacher efficacy at the end of the semester. The results confirm that co-workers play an important and distinctive role in teachers' work settings over time and even suggest that, over time, co-worker competence support is more important than support from school management.

Competence support involves giving a clear and useful structure of how to carry out a job, relevant feedback and information, and giving support that increases confidence in learning and reaching appropriate goals. This study confirms previous research that has found that giving feedback that indicates progressive mastery can improve self-efficacy beliefs (Bandura and Jourden, 1991). This further indicates that competence support in the form of relevant feedback and information may be a form of verbal persuasion. When teachers are given competence support, it is likely that they feel an increased control over their tasks, which in turn is positive for their self-efficacy. Furthermore, in the context of schools, studies have found that when principals give teachers support in terms of instructional practice and perceived capacity, the self-efficacy of teachers is likely to increase (Bellibas and Liu, 2017; Duyar *et al.*, 2013; Ross and Gray, 2006). In contrast, this study revealed that teachers' self-efficacy is significantly benefitted by competence support from peers, but not from their principals.

Interestingly, these results seem to be valid for both Canadian and Swedish teachers. Indeed, there was metric invariance of the Canadian and Swedish samples, which means that the teachers in both countries most likely have interpreted the items in a very similar way.

This study provides empirical evidence that supporting feelings of being competent, by giving relevant and accurate feedback and helping set up appropriate work goals for teachers, peers can establish a supportive environment that increases teachers' sense of efficacy as teachers. When such support comes from their close co-workers, it seems to help them gain a confidence in their own capabilities to remain calm when they face difficulties, find solutions to teaching-related problems, meet the goals they set up at school and feel prepared for most of the demands they experience as teachers. However, competence support from the school management was not associated with growth in teacher efficacy. This finding was surprising, as there are indications in the literature pointing at the management being important for various outcomes, such as thriving and employee growth (Bellibas and Liu, 2017; Sonenshein *et al.*, 2013). This unexpected finding has a number of possible explanations. One such explanation could be that school management support may be perceived as a controlling behavior, as teaching is a rather autonomous profession. Teachers may be used to setting their goals autonomously. Teachers may discuss their teaching with close co-workers and such discussions may comprehend competence support such as positive feedback and teaching advice. However, receiving such support from school management may be perceived as intruding on their autonomy, and they might prefer that their principals do not give that kind of help. It could also indicate that competence support from the school management, even if well intended, may be interpreted in ways that increase workload perceptions. The more goals teachers are informed about, the more work they have to take care of, and such feedback may increase the pressure of doing well at work, which may neither increase nor decrease

teacher efficacy. Thus, it is possible that there is both a negative and a positive relationship of supervisor competence support on teachers' self-efficacy. Taken together, these opposing relationships are probably what cause the neutral relationship found in this study. Thus, the way competence support is given to teachers seems to be of high importance, as competence support could be perceived both as helpful to the teachers and as something that puts additional pressure on them.

Limitations

This study has some important strengths. The cross-cultural design is the strength of this study as it made it possible to demonstrate that the findings were consistent across both Canadian and Swedish school contexts. However, this may also be a limitation as the teachers are situated in different schools. This might lead to a multi-level problem and relationships might be overstated in strength, as the teachers' responses are nested in schools, as in the same way that they are nested within country.

This study also had the advantage of assessing how competence support affects teacher efficacy over the first half of the school year. We expected that this might be the critical time where change would be observed, but it would have greatly improved our research design if we had included more frequent assessments over the course of the whole school year. This would have allowed us to use cross-lagged analyses and to consider reciprocal relationships among our variables.

Another limitation is that only self-reported measures were used. To further our understanding of competence support and self-efficacy, future studies should assess how the school management estimate their support of teachers' competence.

A second limitation of this study is that no objective outcomes were measured beyond competence and teacher efficacy. Further research could, for example, examine whether the students of the teachers achieve better in school as a result of their teachers' increased self-efficacy. In addition, a future study could collect objective data regarding work performance or absenteeism to see if there are relations with the source of competence support and include support from other sources such as students and their parents.

A third limitation is that the current study, although prospective, has a model that is only correlational in nature. As it was not possible to control for all variables that might have influence on the dependent variable, causality cannot be proved. Future studies could be designed as experiments in order to prove causality.

Furthermore, future research should explore not only the level of support that teachers receive from peers and superiors, but also how such support came to be provided. We have assumed that the driving force behind the support is the initiative of the teachers' peers or supervisor. Nevertheless, it is likely the case that teachers may vary in the extent to which they actively seek support or at least provide indications that they are welcome to it. Butler (2007, 2012) conducted a highly relevant line of research in which she has shown that teachers vary in the extent to which they seek autonomous support vs directive support. It is also likely the case that teachers vary in extent to which they seek competence support.

Conclusion

In conclusion, this study makes a contribution to theory by providing support for the importance of competence support from co-workers on teacher efficacy. The findings provide support for the prediction that competence support, such as feedback from others, is prospectively associated with increased teacher efficacy, which has been related to enhanced performance, persistence and thriving at work (Canrinus *et al.*, 2012; Gilbert *et al.*, 2014). An important implication is that positive encouragements, giving positive feedback and help with structuring work related goals seem to increase teachers' beliefs in their own teacher efficacy, but only when it comes from colleagues. Thus, teachers who receive

competence support from their peers are more likely to believe more in their capabilities to be good teachers. This finding is consistent across both cultures, the Canadian and the Swedish. These results may have implications for how schools develop aspects of their work. For example, schools could take care to organize teachers in teacher teams so that competence support from co-workers is promoted. Schools could also encourage teachers to auscultate each other when they are teaching so that they can give each other high quality competence support.

It is interesting to consider why competence support from managers did not have a positive effect on teachers' feelings of self-efficacy. We hypothesize that the hierarchical nature of the relationship between the teacher and the principle may complexify the task of providing competence support. For example, a helpful suggestion from a superior may be interpreted as a criticism of one's competence or as an intrusion into one's autonomous functioning. It is probably the case that there are other relationship and communication factors (interpersonal style and level of trust) that must be considered in order to predict whether competence support will actually be perceived as being supportive.

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Further reading

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Appendix. Questionnaire

Co-worker competence support (adapted from Williams and Deci, 1996; Williams *et al.*, 1996):

The following items concern how you experience your interaction with your closest colleagues. Please indicate how well each statement corresponds to you.

	Strongly disagree					Strongly agree				
1_ My closest teacher co-workers help me feel able to meet the challenges of performing well in my job.	1	2	3	4	5	1	2	3	4	5
2_ I get good help from my closest teacher co-workers to create suitable work goals.	1	2	3	4	5	1	2	3	4	5
3_ My closest teacher co-workers give me positive feedback on my work.	1	2	3	4	5	1	2	3	4	5
4_ I do not get the support from my closest teacher co-workers that I would need in order to feel good at learning new things at work. (R)	1	2	3	4	5	1	2	3	4	5

School management competence support (Williams and Deci, 1996; Williams *et al.*, 1996):

The following items concern how you experience your interaction with the school management (e.g. your principals). Please indicate how well each statement corresponds to you.

	Strongly disagree					Strongly agree				
1_ My principal helps me feel able to meet the challenges of performing well in my job.	1	2	3	4	5	1	2	3	4	5
2_ I get good help from my principal to create suitable work goals.	1	2	3	4	5	1	2	3	4	5
3_ My principal gives me positive feedback on my work.	1	2	3	4	5	1	2	3	4	5
4_ I do not get the support from my principal that I would need in order to feel good at learning new things at work. (R)	1	2	3	4	5	1	2	3	4	5

Personal Teaching Efficacy (Hoy and Woolfolk, 1993):

The following items concern your belief in your capability to handle different situations in your role as a teacher at work. Please indicate how well each statement corresponds to you.

	Strongly disagree					Strongly agree				
1_ When I really try, I can get through to most difficult students.	1	2	3	4	5	1	2	3	4	5
2_ If a student did not remember information I gave in a previous lesson, I would know how to increase his or her retention in the next lesson.	1	2	3	4	5	1	2	3	4	5
3_ If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him or her quickly.	1	2	3	4	5	1	2	3	4	5
4_ If I try hard, I can get through to even the most difficult or unmotivated students.	1	2	3	4	5	1	2	3	4	5
5_ When a student gets a better grade than he or she usually gets, it is usually because I found a better way.	1	2	3	4	5	1	2	3	4	5

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