"Do I Really Need a Course to Learn to Teach Students with Disabilities? I've Been Doing It for Years"

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Abstract

A quantitative study was conducted to compare the attitudes, efficacy, and concerns about inclusive education within three groups of teachers in Manitoba, Canada ($N =$ 191). The three groups included pre-service teachers with coursework about inclusive education, but limited experience in inclusive settings; in-service teachers with experiences in inclusive settings, but no coursework about inclusion; and in-service teachers with inclusive teaching experiences as well as coursework about inclusion. Analysis of variance revealed significant differences between the groups in all three dependent variables and supported the importance of coursework, even for experienced teachers. Subsequent regression analysis demonstrated that experiences and course work contributed differentially to the development of attitudes, concerns, and efficacy for inclusive teaching

in pre-service and in-service teachers. Implications on both in-service and pre-service teacher education are discussed.

Keywords: inclusion, attitudes, efficacy, concerns, in-service, pre-service

Résumé

Une étude quantitative a été menée en vue de comparer les attitudes, l'efficacité et les préoccupations de trois groupes d'enseignants du Manitoba, au Canada, en regard de l'éducation inclusive ($N = 191$). Les trois groupes étaient les suivants : des enseignants en formation initiale avec des cours sur l'éducation inclusive, mais ayant une expérience limitée dans des contextes inclusifs, des enseignants en exercice avec des expériences en inclusion scolaire, mais sans cours sur l'inclusion et, enfin, des enseignants en exercice avec des expériences en inclusion scolaire et des cours sur l'inclusion. Une analyse de variance a révélé des différences significatives entre les groupes pour les trois variables dépendantes et a validé l'importance des cours, même pour les enseignants expérimentés. Une analyse de régression subséquente a démontré que les expériences et les cours contribuaient de façon distincte au développement d'attitudes, aux préoccupations et à l'efficacité en matière d'éducation inclusive chez les enseignants en formation initiale et les enseignants en exercice. Les implications pour la formation initiale à l'enseignement et le perfectionnement des enseignants sont abordées.

Mots-clés : inclusion, attitudes, efficacité, en exercice, enseignants en formation initiale

Introduction

Since the Salamanca Statement (UNESCO) was published in 1994, countries around the world have endeavoured to become more inclusive in their schooling practices. Teachers are recognized as leaders of change within our school systems (Engelbrecht, 2013). Extensive research has shown that teachers play an important part in explaining variance in student outcomes (Kuijpers, Houtveen, & Wubbels, 2010), especially with diverse learners (Forlin, Cedillo, Romero-Contreras, Fletcher, & Hernández, 2010; Timberley & Alton-Lee, 2008), with effect sizes ranging from .26 to .55 of a standard deviation (Wayne, Kwang, Zhu, Cronen, & Garet, 2008). Teacher effects on students are more influential than the effects of the specific school children attend, effects of low socio-economic status, and "large enough to have policy significance" (Nye, Konstantopoulos, & Hedges, 2004, p. 253). Therefore, in order to ensure successful inclusion, a plethora of inclusive education opportunities have been offered to both in-service and pre-service teachers globally. These courses vary greatly in duration, quality, and content, and this variation can affect the likelihood that these courses will enhance teachers' attitudes about inclusion, reduce concerns about inclusion, and increase efficacy for inclusive teaching, ultimately affecting their inclusive teaching practices.

In general, research about in-service teachers (IST) and pre-service teachers (PST) has been undertaken separately, as evidence has shown that the pathway to successful inclusive teaching can differ between these two groups. Furthermore, literature reviews of teacher characteristics and the effects of coursework on PSTs' and ISTs' respective attitudes, concerns, and efficacy for inclusion are inconclusive, given that any thorough literature review will include a broad range of international studies conducted with very diverse teacher groups in varying courses, contexts, and countries. This variation makes it difficult to differentiate the changes that result from teacher education from those that are culturally or contextually dependent. To enhance our understanding, a different kind of study is clearly called for.

In Manitoba, a province of Canada, recent changes to teacher licencing requirements now necessitate inclusive education courses as a requisite for teacher certification in new teachers. Before 2008, there was no such requirement for teachers to undertake courses or professional development in inclusive education, and there is still no requirement for inclusive education courses or workshops by in-service teachers who earned

their certificates prior to 2008. This situation has resulted in 43% of the teaching force holding no courses or professional development in inclusive education while 94% of these same teachers are teaching in inclusive classrooms (Sokal & Sharma, 2014). The new policy requiring pre-service teacher education in inclusion will gradually change this situation, as seasoned teachers retire and are replaced by new teachers who have courses in inclusive education. At the current time, however, this situation has generated a perfect research opportunity in that current PSTs receive education about inclusion but have less experience than ISTs. Furthermore, some of the current ISTs have voluntarily endeavoured to increase their education about inclusive education since their graduation, but some have not, in effect creating three distinct groups: (1) PSTs who had taken coursework but have limited experience in inclusive classrooms; (2) ISTs who have experience in inclusive classrooms and also have taken courses or professional development about inclusion; (3) ISTs who had experience teaching in inclusive classrooms but have not taken courses or professional development about inclusion. Being as the educational programs and employment contexts of these three categories of teachers, who work in the same school system in the Province of Manitoba, are less variable than comparisons between different countries and contexts, a study that compares the attitudes, concerns, and efficacy of both PSTs and ISTs—with and without education in inclusion—who teach in inclusive classrooms within the same school system is possible. All teachers in Manitoba work within the umbrella of inclusion as a philosophy mandated by the provincial government:

> The Public Schools Acts supports Manitoba's philosophy of inclusion, which states: Inclusion is a way of thinking and acting that allows every individual to feel accepted, valued, and safe. An inclusive community consciously evolves to meet the changing needs of its members. Through recognition and support, an inclusive community provides meaningful involvement and equal access to the benefits of citizenship. In Manitoba, we embrace inclusion as a means of enhancing the well-being of every member of the community. By working together, we strengthen our capacity to provide the foundation for a richer future for all of us. (Manitoba Education, 2011, p. 1)

Through this study, we are provided with an opportunity to learn more about the important factors (including teacher education and experience teaching diverse learners) that may affect the attitudes, efficacy, concerns, and motivation of inclusive educators.

Literature Review

Teachers are recognized as agents of change in schools (Engelbrecht, 2013), especially when it comes to educating students with special learning needs (European Agency for Development in Special Needs Education, 2012), and therefore it is important to consider the supports they need to successfully implement inclusion. Research has considered a variety of variables that are associated with successful inclusive teaching, including teachers' attitudes, efficacy, and concerns about inclusion (Sharma & Nuttal, 2016). Some literature supports the effects of teacher education as well as experiences teaching students with disabilities as important variables that enhance teachers' attitudes and efficacy for inclusive teaching, while at the same time addressing some of their concerns about inclusion, although other literature does not support these relationships. The relationship between teachers' attitudes, efficacy, and concerns about inclusion and their actual classroom practices has been investigated (Sokal & Sharma, 2014) and can be explained through Desimone's (2009) model of teacher development.

Desimone's Model of Teacher Development

Research has shown that positive attitudes toward inclusion (Carroll, Forlin, & Jobling, 2003; Forlin, Loreman, Sharma, & Earle, 2009; Sokal & Sharma, 2014), low levels of concern about inclusion (Bradshaw & Mundia, 2006), and high levels of teacher efficacy for inclusive practices (Forlin, Jobling, & Carroll, 2001; Forlin, Loreman, & Sharma, 2014) are important factors that lead to successful inclusive teaching. Together, this research supports the four-step model of teacher development proposed by Desimone (2009): (1) teachers are exposed to effective education through coursework or professional development; (2) teachers grow in their knowledge and skills and/or attitudes and beliefs, as a result of their effective learning; (3) teachers use their new knowledge and skills with their students; (4) students demonstrate increased learning outcomes. It is noteworthy in this model that the changes in teachers' skills and beliefs are prerequisites

for changes in their actions and that these beliefs and skills are modified as a result of effective teacher education. What is unclear in this model is whether teachers can develop the requisite skills and beliefs for inclusive teaching as a result of experience alone, or whether teacher education is a necessary first step. Previous research has explored the effects of both teacher education and experience on teachers' beliefs, specifically their attitudes, concerns, and efficacy for inclusion education.

Effects of Experience and Education on ISTs' and PSTs' Attitudes about Inclusion

In general, most studies have supported the influence of personal contact on positive attitudes toward inclusion. That is, ISTs who have a friend or family member with a disability or who have first-hand experiences teaching students with disabilities tend to hold more positive attitudes toward inclusion (Boyle, Topping, & Jindal-Snape, 2013; Brownlee & Carrington, 2000). Furthermore, Canadian PSTs who have practicum experiences in inclusive classrooms also demonstrated more positive attitudes toward inclusion (Loreman, Forlin, & Sharma, 2007; Sokal, Woloshyn, & Funk-Unrau, 2013).

In terms of the effects of education on ISTs, extensive international research has found that professional development about inclusion predicts more positive attitudes toward inclusion (for examples, see Hsien, Brown, & Bortoli, 2009; Seçer, 2010). In terms of PSTs, most research (for examples, see Beacham & Rouse, 2012; McCray & McHatton, 2011; Sharma & Nuttal, 2016) showed that a course in inclusive education fostered positive attitudes in the PSTs. Likewise, Sharma and Sokal (2015) found a course about inclusion resulted in more positive attitudes in Australian student teachers, however coursework resulted in less positive attitudes in Canadian student teachers. Overall, it appears that courses about inclusion are effective conduits for enhancing positive attitudes toward inclusion within both ISTs and PSTs.

Effects of Experience and Education on ISTs' and PSTs' Concerns about Inclusion

A recent study by Shah, Das, Desai, and Tiwari (2016) showed that Indian teachers' concerns about inclusion varied by their duration of teaching experience with students

with disabilities. Specifically, this study showed that those teachers who had not taught children with disabilities demonstrated greater concerns about including students with disabilities in their classrooms.

In terms of ISTs and educational experiences, Sokal and Sharma (2014) found that education in inclusive education did not predict lower levels of concern about inclusion, and this finding was replicated by Sokal and Katz (2017). Both studies considered Canadian ISTs. Alternatively, Chhabra, Srivastava, and Srivastava's (2010) research with ISTs in Botswana found that the completion of an inclusive education course was an essential component of decreasing teacher concerns about inclusion.

Research specific to PSTs and education in inclusive education is equally inconclusive. Sharma, Forlin, and Loreman (2008) found that a course about inclusion resulted in lower levels of concerns about inclusion in Australian and Canadian PSTs, but they also showed that a course in inclusive education was insufficient to decrease concerns about inclusion in PSTs from Hong Kong and Singapore. Likewise, a study conducted in Ghana and Botswana by Kuyini and Mangope (2011) found that not all courses decreased PSTs' concerns about inclusion, and these scholars attributed the differences to the type and duration of courses about inclusion the students studied.

These disparate findings are likely the result of the differences in inclusive education courses worldwide. The context, quality, duration, and configuration of an inclusive education course may affect its outcomes. Furthermore, Sharma, Forlin, and Loreman (2008) suggested that pre-service teacher education programs about inclusion that are held in countries where strong inclusive education legislation is highlighted, such as Canada and Australia, precipitate lower levels of concern than courses held in countries where there is weaker legislation about inclusion, such as China and Singapore. Forlin and Chambers (2011) found that the pre-service teachers they studied demonstrated enhanced knowledge about inclusion, while at the same time, they showed increased concerns about inclusion—specifically time, workload, and resources—after a course about inclusive education. Together, these findings suggest that education may affect one's concerns about inclusion in both positive and negative ways. If students become aware of insufficient resources or supports for inclusive practices during their coursework, they may demonstrate higher levels of concern about inclusion at the end of their coursework than at the beginning. However, if students are taught that the resources and supports for

inclusion are adequate, they are more likely to demonstrate less concern over the duration of their coursework.

Thus, the research literature about pre-service and in-service teachers' concerns about inclusion is inconclusive. Given the disparate findings across both countries and teacher groups, it is prudent to conduct a study of concerns about inclusion in both in-service and pre-service teachers within the same country and context in order to produce more comparable findings.

Effects of Experience and Education on ISTs' and PSTs' Efficacy for Inclusion

Similar to the other variables under consideration, efficacy for inclusive teaching is influenced by teachers' experiences and education. Specht and colleagues (2016) and Sharma, Shaukat, and Furlough (2015) showed that first-hand experience with students with special needs enhanced PSTs' efficacy for inclusive teaching. In considering the effects of education on PSTs' efficacy for inclusive teaching, Sharma and Sokal (2015) found that an inclusive education course resulted in higher efficacy for inclusion in Australian and Canadian pre-service teachers. Other research replicated this finding with Canadian pre-service teachers, but also showed that courses with an associated practicum in a high-quality inclusive classroom precipitated higher efficacy for inclusion than did courses alone (Sokal, Woloshyn, & Funk-Unrau, 2013), as did programs with durations of longer than one year (Specht et al., 2016). Alternatively, less recent research has indicated a persistent finding that most teachers complete their teacher education programs feeling unprepared to teach in diverse classrooms (Edmunds, 1998; Forlin, Keen, & Barrett, 2008), although this finding could be an artifact of requirements for inclusive education being a more recent development in teacher education programs.

In terms of the effects of inclusive education on ISTs, Emam and Mohamed (2011) found that education in inclusive education did not predict higher levels of efficacy for inclusive teaching in Egyptian teachers, a finding replicated by Sokal and Katz with Canadian teachers (2017). In contrast, other researchers (Engstrand & Roll-Pettersson, 2014; Roll-Pettersson, 2008; Taliaferro, Hammond, & Wyant, 2015) found that professional development in inclusive education for ISTs was associated with higher levels

of efficacy for inclusive teaching. These contradictory findings suggest that the differences in various training programs may result in different outcomes.

Similar to the studies about teacher attitudes and concerns about inclusion previously discussed, the literature about teacher efficacy is inconclusive. Again, it appears that context as well as the quality and content of specific courses about inclusive education result in differences in terms of their impact on teacher efficacy for inclusion. It follows then that a study of in-service and pre-service teachers who learn and work within the same school system would allow more comparable findings regarding each of these three variables: attitudes, concerns, and efficacy for inclusive teaching.

Research Questions

1. Are there significant differences in attitudes, concerns, and efficacy in three groups of teachers (i.e., pre-service teachers who have completed the university training in special education, in-service teachers with no training in special education, and in-service teachers with training in special education)?
2. What teacher characteristics (e.g., prior contact, gender, knowledge of legislation) are significantly associated with positive attitudes, higher efficacy, and lower concern scores?

Methods

Participants and Processes

After the research ethics board approved the proposed study, data from both ($n = 60$) pre-service and ($n = 131$) in-service teachers were collected in 2013 and 2016. Given the large geographical area of Manitoba, data from in-service teachers were collected online, while data from pre-service teachers were collected in person at the end of their coursework in inclusive education via pencil-and-paper surveys. Both groups completed the same set of measures.

Survey Instruments

Data from both groups were collected using a four-part survey instrument. The first part of the survey collected demographic information about the participants (e.g., age, gender, highest level of education). Participants were also asked to indicate if they knew someone with a disability, and to self-evaluate their knowledge of local legislation about disability.

The second part of the survey consisted of the School Principals' Attitudes toward Inclusion (SPATI) scale designed by Bailey (2004). The scale consists of 24 items, of which nine are worded positively and 15 are worded negatively. A participant can respond to each item using a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). A higher score on the scale is suggestive of a more positive attitude toward inclusion of students with disabilities. Although the scale was originally designed for use with principals, it can be used with teachers, as the items relate to inclusion. An example of an item from SPATI is "I believe that all students regardless of their ability should be taught in regular classrooms." The reliability of the scale was calculated using Cronbach's alpha for the current study. It was found to be 0.87 for pre-service sample and 0.86 for the in-service sample, suggesting that the scale is reliable for both samples.

The third part of the questionnaire was the Concerns about Inclusive Education scale (Sharma & Desai, 2002). The scale consists of 21 items. Each item presents a concern. An example statement is "My workload will increase." Participants indicate their degree of concern using a 4-point Likert scale with responses ranging from not at all concerned (1) to extremely concerned (4). The scale yields a total score, the value of which can range from 21 to 84. A higher score indicates that a respondent is more concerned about his or her ability to implement inclusion. The scale yields an overall concern score as well as four factor scores. These factors are concerns about lack of resources, concerns about lack of acceptance, concerns about schools' declining academic standards, and concerns about increase in workload. Reliability coefficients for this scale were 0.88 and 0.92 for pre- and in-service teachers, respectively.

The fourth part of the questionnaire measured participants' perceived level of teacher efficacy using the Teacher Efficacy for Inclusive Practices scale (Sharma, Loreman, & Forlin, 2012). Each item on the scale can be responded to using a 6-point Likert scale with responses ranging from strongly disagree (1) to strongly agree (6). The scale has 18 items, and it yields a total score, the value of which can range from 18 to 108. A

higher score on the scale is an indication that the participant perceives himself or herself to have a higher sense of efficacy to teach in inclusive classrooms. An example of an item from the scale reads as follows: "I am confident in designing learning tasks so that the individual needs of students with disabilities are accommodated." The reliability of this scale was examined for the study samples, and it was found to be 0.88 for the in-service sample and 0.91 for the pre-service sample.

Findings

Participants

The majority of participants in both categories were female (85% of the PSTs, and 86% of the ISTs). Most of the pre-service teachers were younger than 29 years of age (98%). In contrast, the majority of in-service teachers were above the age of 29 years (58%), and they had been teaching for an average of 15 years (*range* = 2–40 years). Both groups of educators had had contact with a person with a disability. Compared to pre-service teachers (33%), more in-service teachers (40%) indicated having a family member with a disability. A minority of educators in both groups—22% of the pre-service teachers and 21% of in-service—indicated having a close friend with a disability.

Group Differences in Attitudes, Concerns, and Teaching Efficacy

In order to investigate the first research question, the participants were divided into three groups based on education and experience: (1) PSTs (*n* = 60) who had taken coursework but had limited experience in inclusive classrooms; (2) ISTs (*n* = 74) who had experience in inclusive classrooms and also had taken courses or professional development about inclusion; (3) ISTs (*n* = 57) who had experience in inclusive classrooms but had not taken courses or professional development about inclusion.

Between-group analysis of variance. An ANOVA revealed that significant differences existed between the groups in terms of attitudes toward inclusion [F (2, 188) = 5.41, $p < .005$], concerns about inclusion [F (2, 188) = 5.05, $p < .007$], and efficacy for inclusive teaching [F (2, 188) = 7.76, $p < .001$]. Post hoc comparisons using Sheffe tests

indicated that the mean attitudes toward inclusion score in the pre-service teachers with inclusion education but little experience ($M = 3.31$, $SD = 1.36$) was significantly lower than the mean attitudes toward inclusion scores of the in-service teachers with both inclusion education and experience ($M = 3.77$, $SD = .46$). In terms of concerns about inclusion, the post hoc comparisons indicated that the mean concerns about inclusion score in the pre-service teachers with inclusion education but little experience ($M = 1.98$, $SD = .53$) was significantly lower than the mean concerns toward inclusion scores in the in-service teachers with experience but no education in inclusive teaching ($M = 2.27$, $SD = .53$). Finally, the post hoc comparisons using Sheffe tests indicated that the mean efficacy for inclusion score in the pre-service teachers with inclusion education but little experience ($M = 4.64$, $SD = .58$) was significantly lower than the mean efficacy for inclusion scores in the in-service teachers with both experience and education in inclusive teaching ($M = 5.02$, $SD = .59$). The data suggested that of the three groups, in-service teachers with experience and education were more positive in their attitudes, concerns, and efficacy scores as compared to pre-service teachers and in-service teachers with no education. It seem to suggest that education in the form of specific professional development in inclusive and special education has positive effect on teachers.

Table 1. Between-group significant differences in mean scores

Group	Efficacy	Attitude	Concern
Pre-service teachers	4.64**	3.31*	1.98*
In-service teachers with coursework	5.02**	3.77*	
In-service teachers without coursework			2.27*

Note. Higher means indicate greater efficacy and more positive attitudes, as well as greater levels of concern.
*Significant at the .01 level.
**Significant at the .001 level.

Linear regression analyses were conducted in order to answer the second research question. Six regressions were conducted—one for each of attitudes, concerns, and efficacy for inclusive teaching in the IST and the PST groups separately. For each group, we investigated the effect of gender, having a family member with a disability, knowledge of local laws and legislation related to inclusion, level of confidence teaching students with disabilities, and level of disability training.

Regression analysis for pre-service teachers. For the PST group, a significant regression equation was found for attitudes toward inclusive teaching [F (5, 54 = 3.61, p < .007] with an R^2 of .25. The coefficients indicated that having a family member with a disability (*Beta* = .39, t(54) = 3.11, p < .003), and knowledge of local education acts and legislation related to inclusion (*Beta* = -.30, t(54) = -2.00, p = .05 predicted PSTs' attitudes toward inclusion. In terms of concerns about inclusive teaching, a significant regression equation was found for concerns about inclusive teaching in PSTs [F (5, 54 = 3.13, p < .015] with an R^2 of .23. The coefficients indicated that level of confidence in teaching students with disabilities (*Beta* = -.50, t(54) = -3.13, p < .003) significantly predicted their concern levels about inclusive teaching. For the PST group, the regression equation for efficacy for inclusive teaching showed no significant predictor variables out of those considered [F (5, 54 = 1.81, p < .13] with an R^2 of 1.43.

Regression analysis for in-service teachers. For the IST group, a significant regression equation was found for attitudes toward inclusive teaching [F (4,126 = 7.23, p < .000] with an R^2 of .19. The coefficients indicated that level of confidence in teaching students with disabilities (*Beta* = .26, t(126) = 3.00 , p < .003) and having education in inclusive teaching (*Beta* = -.27, t(126) = -3.18, p < .002) significantly predicted IST's attitudes towards inclusion. For the IST group, the regression equation for concerns about inclusive teaching showed no significant predictor variables out of those considered [F (4, 126 = 2.0, p < .1] with an R^2 of .06. However, a significant regression equation was found for efficacy for inclusive teaching in ISTs [F (5, 126 = 6.27, p < .000] with an R^2 of .17. The coefficients indicated that level of confidence in teaching students with disabilities (*Beta* = .33, t(126) = 3.82, p < .000) significantly predicted ISTs' efficacy towards inclusive teaching.

Discussion

The findings support the importance of both education and experience in preparing inclusive educators. In terms of efficacy for inclusive teaching, we found that a combination of both experience with and education about inclusive teaching differentiated the PSTs from the ISTs. That is, ISTs with both experience and education in inclusion demonstrated higher efficacy and more positive attitudes than did PSTs, who had education but

little experience. Moreover, PSTs with education about inclusion but little experience with inclusive classrooms held lower levels of concern about inclusion than did ISTs with experience but no education in inclusive practices. Together, these findings suggest that neither extended experience alone nor professional learning alone is enough to garner the same benefits as both experience and education. This finding supports previous research and has implications for both pre-service and in-service teacher education.

For pre-service teachers, it is important that first-hand experiences with students with disabilities in classroom settings supplement their coursework in inclusive education. Past research has shown that courses with an associated practicum in a high-quality inclusive classroom precipitate higher efficacy for inclusion than courses alone (Sokal, Woloshyn, & Funk-Unrau, 2013), as do programs with durations of longer than one year (Specht et al., 2016). The students in the current program had only 10 contact days in inclusive classrooms over their 12-week course. Completing a course on inclusive education, while necessary, may not be sufficient to garner the effects of coursework coupled with experience on attitudes and efficacy for inclusive teaching. University educators need to ensure that graduates complete a high quality teacher education program that addresses issues relating to education of students with a variety of learning abilities. It is also equally important that teacher education programs identify and arrange for extended teaching placement opportunities that allow PSTs to bridge the gap between theory and practice of inclusive education. For in-service teachers, the current research suggests that extended time teaching in inclusive classrooms alone does not decrease teachers' concern levels about inclusion, and professional development in this area may lower ISTs' concerns about inclusion.

The regression analyses revealed some interesting trends. It is clear from the findings that both experiences and internal processes predict attitudes, concerns, and efficacy for inclusion. Internal processes, such as level of confidence, predict levels of concern in PSTs and levels of efficacy and attitudes toward inclusion in ISTs. For PSTs, who have lower levels of experience in inclusive classrooms, it appears that personal experiences (such as having a family member with a disability) as well as educational experiences (such as learning about the laws and legislation supporting inclusion) predict more positive attitudes toward inclusion. For ISTs, attitudes toward inclusion are also affected by experiential factors, such as having taken courses in inclusive education.

Together, these findings suggest that positively effecting PSTs' and ISTs' attitudes, concerns, and efficacy is not the result of education or experience alone. Both high-quality education in inclusive education as well as extended experiences in high-quality inclusive settings are necessary for both ISTs and PSTs to develop positive attitudes and efficacy for inclusion while decreasing their concerns.

Implications for Teacher Education

PSTs' teacher education. Pre-service teachers who pursue coursework in inclusive education tend to demonstrate more positive attitudes toward teaching students with disabilities (Hastings & Oakford, 2003), although this is not always the case (Sharma & Sokal, 2015). Loreman, Forlin, and Sharma (2007) have pointed not only to the importance of practicum in inclusive settings but also to the importance of practicum in *high-quality* settings as an integral component of pre-service teacher education for inclusion. These settings are characterized by adequate supports and resources, as well as opportunities for PSTs to be exposed to experiences that challenge pre-existing attitudes, and also provide support for PSTs to examine and reflect on those attitudes. Furthermore, course work about inclusion must necessarily include content about the laws and legislation supporting inclusive teaching practices, as the current research as well as past research (Loreman et al., 2007) shows it has significant effects on PSTs' beliefs and attitudes. Our findings support the claim, "The most effective way of achieving this balance has been demonstrated to be a combination of formal education and direct contact with individuals with a disability" (Sharma & Nuttal, 2016, p. 144). We need to think of devising innovative ways of providing education and experience to PSTs so that they form positive beliefs about inclusion. One way to do this could be to provide ongoing support as part of pre-service teaching during the first six months following completion of the teacher education program. PSTs could be supported through in-school training during the initial phase of their employment to apply theory into practice in real life work settings. This practice may also allow improvement in the quality of pre-service teacher education curriculum, as the universities will be able to incorporate new content that may not have been covered during the course.

ISTs' teacher education. For ISTs, teacher professional learning (TPL) is "the most effective leadership practice in strengthening student outcomes" (Timberley & Alton-Lee, 2008, p. 358) and one of the keys to improving the quality of schools (Desimone, 2009). However, Borko (2004), in her presidential address at the meetings of the American Educational Research Association, recognized that current models of TPL are woefully inadequate, as they fail to consider current knowledge about teacher learning, are intellectually inferior, and are fragmented. Other researchers have agreed, and have called for better models of TPL and stronger models of their evaluation (Opfer, Pedder, & Lavicza, 2011; Timberley & Alton-Lee, 2008). Moreover, research on TPL has to move from examinations of *efficacy* trials that evaluated specific models in ideal conditions, to *effectiveness* evaluations of models within the full range of settings in which they are designed to work (Borko, 2004; Wayne et al., 2008).

So what does research say about the components that support effective TPL? Desimone (2009) and Penuel, Fishman, Yamaguchi, & Gallagher (2007) argued that there is a convergence of evidence that supports a list of critical, core features. These features include: (a) a focus on content that assists teachers in understanding how students learn; (b) active learning for teachers that is "imbedded in classroom context constructed through experience and practice" (Bruce, Esmonde, Ross, Dookie, & Beatty, 2010, p. 1599); (c) coherence between the TPL, the teachers' beliefs and knowledge, and the school division's policy initiatives; (d) a duration of at least 20 hours spread over at least one semester; (e) collective participation of teachers from the same school, school division, or grade. Collective participation may take the form of professional learning communities (PLCs) as long as they are formed at the initiative of the members and led by strong, credible leaders (Kuijpers, Houtveen, & Wubbels, 2010) rather than becoming "rituals of enforced or contrived collegiality" (Hargreaves, 2010, p. 290). Thus, effective models incorporate both "top-down" initiatives, such as policy development at the divisional level, and "bottom-up" supports, such as PLCs (Fullan, 2000). When these components are in place, they can lead to increases in teacher knowledge and skills, which in turn affect behaviours that precipitate positive student outcomes (Desimone, 2009).

Forlin, Loreman, Sharma, and Earle (2009) showed that without formal education in inclusive teaching, in-service teachers show decreased willingness to appropriately teach children with special needs. This finding is especially troubling when one considers that these attitudes may be passed along to pre-service teachers during their practica in

these settings. Avramidis and Norwich (2002) argued that these negative attitudes are the result of poor teacher professional learning that assumes that teachers already have the skills and training that allow them to be competent at inclusive teaching. By considering the components of quality TPL offered by Desimone (2009), teacher professional learning can achieve its goal of preparing teachers for effective inclusive classroom teaching.

All research has its limitations, and ours is no exception. First, our understanding of our findings may have been enriched if we had gathered information about the quality and duration of the ISTs' educational experiences. While we have enough information to categorize these teachers, we do not have information about the details of those experiences, which would have provided us with richer data and possibly greater understanding. Second, both ISTs and PSTs were recruited on a voluntary basis. It is possible that those who chose to participate did so because they had strong feelings about inclusion and their teacher preparation for inclusive teaching. It is possible that these feelings created biases in the ISTs and PSTs who participated, and may limit our ability to generalize our findings to the broader populations of ISTs and PSTs.

Overall, however, the current research demonstrates that the pre-service and in-service teachers studied benefited from both experience teaching in inclusive settings and teacher education about inclusion. While both variables garnered positive effects alone, the most well prepared inclusive educators had both.

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