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Research paper

Measuring the use of inclusive practices among pre-service educators: A multi-national study

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HIGHLIGHTS

- The study reports development of a new scale to measure use of inclusive practices by teachers.
- Teaching efficacy was the strongest predictor of participants' use of inclusive practices for all institutions except India.
- Attitude did not contribute much in explaining the use of inclusive practices.

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ABSTRACT

The inclusion of all learners in mainstream classrooms is an objective for schools internationally. The aim of this study was to test the psychometric properties of the newly developed Inclusive Practices Scale (IPS) to determine if the intention to use inclusive practices could be predicted from participants' attitudes and efficacy scores. Participants included 390 pre-service educators from four countries (Australia, India, Canada, and Hong Kong). Results suggest that the IPS is both a reliable and valid instrument, with teaching efficacy the strongest predictor of inclusive practice intentions. The IPS could be a meaningful tool in determining pre-service and in-service educators' intentions to use inclusive practices.

The inclusion of learners with a range of abilities in regular neighbourhood schools has long been an international objective. We define inclusion as the creation of classrooms where diversity is valued and considered a strength. Inclusive teachers carefully identify barriers that may marginalise some learners and use teaching practices that address these barriers so as to provide for the participation of all learners. Most Western nations now either have legislation or policy frameworks that require schools to educate students with a range of abilities, including disabilities, alongside their peers. Such legislative and policy reforms are also being increasingly enacted by a number of developing countries (e.g. Bangladesh, India, Indonesia, Thailand, and South Africa). A number of factors have contributed to the adoption of inclusive education. Two major factors among many include research that shows that inclusion benefits both students with and without disabilities (Kalambouka, Farrell, Dyson, & Kaplan, 2007; Ruijs & Peetsma, 2009) as well as recognition by international bodies such as the United Nations that inclusion is the most cost-effective way to provide education to millions of children with disabilities who rarely receive any form of education in developing countries (UNESCO, 2020).

It is now widely accepted that school educators play an important role in the success of inclusive education (Engelbrecht, 2013), as they do in any educational reform movement: educators who have positive attitudes towards inclusion, who have high levels of teaching efficacy (Sharma, Forlin, & Loreman, 2008; Sharma & Nuttal, 2016), and those who receive sufficient support from their leaders and colleagues tend to be more successful at including learners with diverse abilities compared to those educators who have negative attitudes, have lower levels of inclusive teaching efficacy, and who teach in non-supportive schools (Sharma, 2018; Sharma, Forlin, & Loreman, 2008). While all three factors play

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important roles in influencing educators' teaching practices, most of the published research in recent years has focused on educators' attitudes towards inclusion. Research on educators' efficacy beliefs and evidence regarding what support is vital in influencing educators' teaching practices is more limited. Surprisingly, research on how attitudes influence teaching practices or how increased levels of inclusive teaching efficacy influence inclusive teaching practices is almost non-existent within the field of inclusive education. Research on how attitudes and efficacy beliefs could jointly influence inclusive teaching practices is also sparse in the literature.

This study seeks to contribute to the research literature linking pre-service teacher attitudes, efficacy, and teaching practice in the area of inclusive education. Moreover, through the development and validation of a new research tool, the project hopes to contribute to future research that examines these links. Specifically, the aims of this study were:

(1) To assess psychometric properties of the Inclusive Practices Scale, and
(2) To determine association between participants' attitudes towards inclusion and teaching efficacy to teach in inclusive classrooms and their intended use of inclusive practices.

1. Teaching practices that support inclusion

Incorporating studies of actual teaching practices for successful inclusion into the existing research literature about latent variables such as attitudes and efficacy is essential to the development of our understanding of the linkages between these areas. While there is substantial research examining educators' attitudes and efficacy, research on how these variables influence or correlate with actual teaching practices in inclusive classrooms is limited. In one of the few observational studies linking attitudes, efficacy, and actual teaching practice, Sharma and Sokal (2016) found that both perceived efficacy for inclusion and positive attitudes toward inclusion were correlated with inclusive classroom practices. There are several reasons why this type of research is challenging and less common. First, while observational research provides less subjective data than self-report scales, this type of research design is also more time consuming and costly. Another reason for the lack of such research is a lack of valid instruments for use in measuring inclusive teaching practices. In this paper we make an attempt to address this gap.

Whether or not a learner with diverse abilities (e.g., disability) is truly included in regular classrooms depends on a number of factors. These factors include school educators' ability to meet the educational and social needs of all children, their willingness to include learners with diverse abilities, and the availability of the necessary supports to teach all students together (Sharma, 2018). School leaders also play a significant role in creating an environment where inclusive practices are initiated and supported (Billingsley & Banks, 2019; Author, 2020).

The question that remains unanswered is how do we know if a learner is truly included? Recent research (DeVries, Voss, & Gebhardt, 2018) conducted with 407 students over the course of grades 6 and 7 suggested that, even in inclusive educational settings, students do not always feel included. These researchers found that, compared to students without special educational needs, the 48 students in the sample who had special learning needs felt less emotionally included overall. However, while the students without special educational needs felt significantly less emotionally included over the course of their transition from grade 6 to 7, the students with special needs felt more emotionally included during the same period. Likewise, in a review of the literature on perceptions of inclusion, Hergott (2020) found different trends across countries, suggesting that contextual factors influence subjective assessments of being included. Hergott highlighted the importance of teacher preparation in equipping teachers with the skills, approaches, and strategies that enabled students with special educational needs to experience true inclusion.

Given the importance of teachers in designing and implementing inclusive environments for learning, it is important to consider the actions that contribute to perceptions of inclusion by the recipients of these intentions. What do teachers do when interacting with all learners to include those who need extensive support in terms of adjustment of curricular and teaching activities? It is likely that inclusion will look different in different contexts. However, there are some common features that can be identified and can be explicitly taught to educators during their university and in-service teacher development. A number of researchers have looked at teaching strategies that are effective in inclusive classrooms. Some of the common practices used by educators to include learners with diverse abilities include use of differentiated teaching practices, use of adapted curriculum material, peer and group teaching methods, and use of assistive technology (UNESCO, 2020). Some other strategies that frequently appear in the literature include co-operative learning and peer tutoring, differentiated instruction, and co-teaching (UNESCO, 2020). Some authors have also reported that inclusive educators not only teach learners using a variety of teaching strategies, they also work in close partnership with family members (Powell, Son, File, & San Juan, 2010). Teachers also need to know how to work effectively with other adults such as paraprofessionals, parents, and other educators (Giangreco, 2013). Researchers have also found that teachers need to be confident in using universal design for learning (Hehir & Katzman, 2012). Interestingly most of the research on teaching practices in inclusive classrooms has originated in Western countries. It is yet not clear if the strategies that work in Western classrooms would be equally effective in classrooms in developing countries, where classroom dynamics and demographics are significantly different from the classrooms of the West. It is important that research is conducted in identifying teaching practices that are likely to be effective in various types of classrooms globally.

2. Preparing teachers for inclusive classrooms

As teacher preparation programs strive to equip teacher candidates with competencies in strategies shown to be effective in enacting inclusion, they must also consider both the knowledge and the personal affective factors in pre-service teachers that contribute to this goal. Some of the key aspects that teachers need to know include knowledge of how students' physical, intellectual, and social emotional development may affect their learning (Engelbrecht, 2013; Sharma, 2018). In terms of affective factors, research has considered teachers' and pre-service teachers' attitudes, efficacy, and concerns about inclusion as important variables in contributing to successful inclusive practice.

3. Affective factors that may influence use of inclusive practices

A number of studies have examined factors such as attitudes and efficacy beliefs to teach in inclusive classrooms, as it is commonly believed that teachers with positive attitudes and/or higher levels of efficacy are more likely to use inclusive practices compared to teachers who have less positive attitudes and lower levels of efficacy beliefs. A brief review of attitudinal and efficacy research and the relationship with teacher education programs

internationally may shed some light on factors that could indirectly influence inclusive practices. Importantly, the differences and similarities between these research studies' findings from different countries suggest that not all teacher education programs are effective in promoting positive attitudes and increased efficacy for inclusive teaching practices.

3.1. Attitudes towards inclusion

When considering the affective variables that influence the use of inclusive practices, attitudes toward inclusion have received the most research attention (Avramidis & Norwich, 2002). Attitudes toward inclusion are an important area of study, as Mittler (2003) found that negative attitudes toward inclusion constituted the most considerable barrier to the success of inclusion as both a practice and a philosophy. The research base on attitudes towards inclusion has focused on in-service teachers' attitudes, and generally shows that both environmental and individual teacher characteristics affect teachers' attitudes. For example, Boyle, Topping, and Jindal-Snape (2013) showed that practicing teachers who held positive attitudes toward inclusion were most likely to hold support roles in their schools (such as resource teacher roles), had undertaken studies in inclusion or special education, and were teachers who had a friend or family member with a disability. Likewise, Sharma and Sokal (2016) and Sokal and Sharma (2014) showed that Canadian teachers who had experienced training in inclusive education and felt more efficacious for inclusive teaching concurrently held more positive attitudes toward inclusion. (Sharma & Jacobs, 2016) showed that the positive correlation between efficacy for inclusive teaching and positive attitudes toward inclusion also was evident in Indian and Australian samples of in-service teachers.

Relatively less is known about the ways to foster the development of positive attitudes toward inclusion in pre-service teachers (Sharma & Sokal, 2015), however the research that does exist suggests that attitudes of pre-service teachers are also important considerations with regard to inclusion. Cook (2002) showed that pre-service teachers hold generally positive attitudes toward inclusion, but these attitudes become more negative when they considered including students with severe disabilities– a finding consistent with the research conducted with in-service teachers (Avramidis & Norwich, 2002). More recent research has shown that university courses about inclusive practices can influence attitudes toward inclusion in pre-service teachers. For example, Sharma and Sokal (2015) showed that attitudes toward inclusion improved in Australian pre-service teachers as a result of a course about inclusive teaching, whereas the Canadian pre-service teachers demonstrated more negative attitudes at the end of the coursework. Sharma and Nuttal (2016) replicated the Australian findings with another sample of Australian pre-service teachers and further found that the course work had the greatest positive impact on attitudes of student teachers who had no previous experience teaching students with disabilities.

Researchers have found that past training in special and inclusive education tends to influence educators' attitudes positively (Avramidis and Norwich, 2002). In a South African study of pre-service teachers, Oswald and Swart (2011) found that as knowledge, skills, and training in inclusive education increased; participants' attitudes towards inclusion also increased positively. Positive correlations between attitude and training are also found by other researchers in Australia (Sharma & Nuttal, 2016), Canada(Sharma & Sokal, 2015) and Bangladesh (Ahsan, Deppeler, & Sharma, 2013). It is important to highlight that training does not always result in positive change in participants' attitudes (Sharma, Forlin, & Loreman, 2008). Change in attitudes occurs when training is appropriate (Sharma, Forlin, & Loreman, 2008) in terms of the content and delivery. For example, when educators learn mainly about various types of disabilities and characteristics of students with a range of disabilities, they may become more apprehensive about inclusion of students with disabilities in their classrooms. Educators need to learn both the theory of inclusive education (*what is inclusion and why inclusion*), they also need to learn about practical aspects of implementing inclusive education (*how to include*) for them to become positively disposed to include all learners. Researchers have also found that educators' attitudes are negatively correlated with their level of concerns (Sharma, Moore, & Sonawane, 2009). In other words, as the level of concerns about teaching in inclusive classrooms increases, educators tend to become less positive about teaching in inclusive classrooms. There are four major areas of concerns that are raised by educators internationally. These are concerns about inadequate resources, concerns about the acceptance of students with disabilities by peers and parents, concerns about increase in workload, and concerns about teaching students with severe emotional behavioural problems and those who lack self-help skills (Sharma, Moore, & Sonawane, 2009). When educators' concerns are addressed during pre-service and in-service teacher education programs, they tend to develop more positive attitudes towards inclusion.

3.2. Teaching efficacy to teach in inclusive classrooms

Efficacy can be defined as one's perceptions of competence at a given task. While teaching efficacy was once treated as a global construct, this conceptualization was challenged by Tschannen-Moran & Woolfolk Hoy (2001). These researchers have proposed that efficacy for teaching is context-dependent. That is, a teacher who is highly efficacious in one subject or with a particular type or grade of students may not feel equally efficacious in other circumstances. Based on this understanding, teacher efficacy for inclusion in particular has become a popular area of study, and the introduction of new measurement instruments has further supported a burgeoning of global research in this area. For example, a collection of Canadian professors of inclusive education published a national study about efficacy in 1490 pre-service teachers (Specht et al., 2016). This study showed that pre-service teachers enrolled in one-year programs of teacher education had lower efficacy for inclusive practice than did pre-service teachers enrolled in longer programs, and that pre-service teachers with previous experiences with students with disabilities were more efficacious in terms of inclusive teaching. Wertheim and Leyser (2002) earlier suggested that coursework has the potential to enhance pre-service teachers' efficacy for inclusion and proposed that it should be a required component of teacher education.

Research has demonstrated that effective teacher education programs can influence pre-service teacher efficacy for inclusion. Research with Australian (Sharma & Nuttal, 2016, Sokal & Sharma, 2014) Canadian (Sokal, Woloshyn, & Funk-Unrau, 2014), and American students (Taliaferro, Hammond, & Wyant, 2015) showed that pre-service teachers in these studies demonstrated greater efficacy for inclusion after their courses than before. Sokal, Woloshyn, & Funk-Unrau (2014) showed that while course work alone and course work coupled with a practicum in an inclusive setting both enhanced pre-service teacher efficacy for inclusion, the students who experienced the practicum demonstrated greater efficacy gains than other students in the area of efficacy for managing behaviours. This is an important finding, as teacher concerns about managing behaviours in inclusive settings are common, and teachers are less accepting of children with special behavioural and emotional needs than they are of children with other disabilities (Milner & Tenore, 2010; Stempien & Loeb, 2002). In an Irish study

Hosford and O'Sullivan (2016) found similar results: Teachers who perceived that their school climate was supportive of inclusion not only felt more efficacious for inclusive teaching but also felt more confident dealing with challenging student behaviours in particular.

While there is a reasonable amount of research about the impacts of positive attitudes toward inclusion and teacher efficacy for inclusion, less is known about how these latent variables affect teachers' intentions and actual teaching behaviors. A theoretical framework to help explicate this relationship has been offered by Ajzen (2005), and has significant application in the area of inclusive educational practices and teacher preparation.

4. Theoretical framework

Ajzen's Theory of Planned Behaviour (Ajzen, 1985, 2005) guided the conceptual framework of the study. According to Ajzen, a person's actual behaviour (for example teacher's interactions in a classroom) can be predicted based on how the person intends to behave in a particular situation (i.e. intention to teach in inclusive classrooms). Thus, intention is the most closely related construct to actual behaviour. Intention, in turn, is influenced by three closely related constructs of attitude (i.e., whether or not a teacher perceived inclusion positively or negatively), perceived competence (i.e., has the ability and confidence to perform the behaviour) and subjective norm (i.e., how others perceive the behaviour). If a person has positive attitudes towards a phenomenon, high level of perceived competence to perform the behaviour, and works in a setting where most other significant others also believe in the idea, he or she is most likely to intend to perform the behaviour. In turn, their intention will most likely be translated into actual behaviour. In the current study, attitudes will be measured by using the Attitudes Towards Inclusive Education Scale, perceived competence will be measured by using Teacher Efficacy for Implementing Inclusive Practices Scale, and intentions will be measured by using a new scale of teaching practices called the Inclusive Practices Scale. Subjective norms cannot be measured for pre-service teachers, as they do not work regularly in one environment where they can reflect upon the perceptions of other members of staff about how they perceive inclusive education.

5. Contextual descriptions of the teacher education programs

Participants in this study were pre-service teachers who were recruited from four countries.

5.1. Australia

Participants from Australia were enrolled in a 4-year undergraduate teacher education program. They were completing a fourth-year course entitled: 'Introduction to Special/Inclusive Education' delivered via face-to-face mode (2 h of lectures) for 9 weeks. A major focus of the program was on inclusive education. The course covered content related to 'what', 'why', and 'how' of inclusive education. The 'what' aspect covered various conceptual foundations of inclusive education with a major focus on social models of disability. The 'why' aspects of the course mainly focused on explaining the rationale of inclusive education from legislative, moral, and research perspectives. The 'how' aspect mainly covered inclusive teaching strategies such as cooperative learning, peer tutoring, curricular adaptations, and differentiated instruction.

5.2. Hong Kong

Participants from Hong Kong were in-service teachers who were completing a course in inclusive education at a local university. The course covered content related to etiology, diagnosis, and educational implications of special educational needs. It covered basic information about teaching strategies that can be used to support learners with special needs. The course also covered information about local legislation and policies supporting inclusive and special education in Hong Kong. The duration of the course was 40 h, and all classes were offered in face-to-face mode.

5.3. India

Participants from India were enrolled in a two-year (four semesters) Bachelor of Education (B.Ed) program at a local university in the south of India. The B. Ed program is offered to students who have already completed an undergraduate degree. The participants were enrolled in a unit called 'Inclusive Practice' in the last semester of the program. The content of the unit was split into three major components: 'Introduction to Inclusive Education', 'Policies and Framework facilitating Inclusive Education', and, 'Supports and Collaboration for Inclusive Education.' The social model of disability informed the content of the program. Participants received 66 h of face-to-face instruction in the inclusive education course.

5.4. Canada

Program One. The sample from the western Canadian university comprised students in a 2-year Bachelor of Education After-Degree program designed with an elementary (primary) education focus. At the time of data collection this program employed a content-infused approach to teaching about inclusive education (see Loreman, 2010, for a more comprehensive description of this approach). Pre-service teachers were introduced to important ideas, theories, and practical aspects of inclusive education at various touch points throughout the 2-year program from a range of instructors, providing them with a varied set of information and perspectives.

Program Two. The central Canadian university program entailed a 3-credit-hour course called 'Inclusive Approaches to Teaching Exceptional Children.' Students received 36 contact hours of classroom instruction over a 12-week period in this course, as part of their longer five-year teacher education program. This course addressed the relevant theories, delivery systems, assessment, adaptive programming, family and community involvement, and education services for children with mild to moderate cognitive, emotional, and behavioural special needs. The course also covered the mandated provincial curriculum and policies as well as professional, legal, ethical, and societal considerations. Students were expected to begin to link this theoretical perspective to a practical understanding of the wide-ranging issues of inclusive education in Manitoba schools, and this was accomplished with a 10-week practicum (one day per week) in inclusive settings in Manitoban schools that occurred concurrently with the in-class work. The course was taught by a variety of instructors, including some tenured professors with doctoral degrees in this subject area, and some contracted faculty members who held Masters degrees in this area and had substantial experience teaching in inclusive Manitoban settings.

6. Methodology

6.1. Participants

Participants for this study were 390 pre-service educators (except Hong Kong where they were in-service teachers) from five universities in four countries: Australia ($n = 82$), Canada Program

One ($n = 39$), Canada Program Two ($n = 113$), Hong Kong ($n = 87$) and India ($n = 69$) who were currently attending teacher education/professional learning programs. The Canadian sample was drawn from two universities. Fifty-five percent ($n = 171$) of the participants were male. Approximately 70% of the sample was younger than 30 years of age. An overwhelming majority (70%) of the participants indicated knowing a person with a disability.

6.2. Data collection

Ethics approval was obtained from each of the universities prior to data collection. Data collection in each country followed a similar procedure. One of the lecturers teaching in the program distributed paper and pencil surveys to all students enrolled in the program during the teaching program. The participants were provided an explanatory statement and were told that their participation in the study was completely voluntary and had no relation to their performance in the course. Participants were asked to complete the surveys and return them to the lecturer at the end of the class. In the Canadian classes, students completed the survey at home and submitted it anonymously to an office assistant. The data were collected in the first class of the semester.

6.3. Instruments

Data were collected using a four-part scale.

Part One. The Attitudes toward Inclusive Education Scale (AIS) (Sharma & Jacobs, 2016) has 8 items. Each item can be responded to by using a Likert-type scale with responses ranging from Strongly Disagree (1) to Strongly Agree (7). The scale yields a total score which can range from 8 to 56. A higher score on this scale is indicative that the participant has more positive attitudes compared to another participant who obtains a lower score. The reliability of the scale was tested on an international sample prior to the current study, and it was found to be adequate ($\alpha = 0.86$). The alpha coefficient for the scale for the current sample of participants from four countries was 0.87, suggesting very good reliability of the scale.

Part Two. The Teacher Efficacy for Inclusive Practices scale (TEIP) (Sharma, Loreman, & Forlin, 2012) was designed to measure teaching efficacy beliefs of respondents regarding teaching in inclusive classrooms. The scale consists of 18 items. Each item of the scale could be responded to using a six-point Likert type scale from Strongly Disagree (1) to Strongly Agree (6). A higher score on the scale is indicative of a higher level of teaching efficacy for teaching in inclusive classrooms. The scale is widely used by researchers, has been translated into multiple languages, and was found to have high reliability and validity across various international contexts ($\alpha = 0.89$). The reliability for the scale for the current sample of participants from four countries was excellent ($\alpha = 0.91$).

Part Three. The Inclusive Practice Scale (IPS) that was specifically designed for the current study. Items for the scale were based on a previously used classroom inclusive practices observational scale (Sharma & Sokal, 2016). The items in the classroom observational scale were developed based on a comprehensive review of the literature on inclusive education (anonymous for blind review). Items from the classroom observational scale were re-written so as to allow educators to self-report the extent to which they have either used a teaching practice or were most likely to use the practice when they would start teaching. Each item could be responded to using a five-point scale. The ratings were: Expert (4), Proficient (3), Developing (2), Novice (1) and Not Applicable (0). The original scale consisted of 34 items. Each statement starts with a stem phrase "In my classroom, I will/I do" followed by a statement such as "plan instruction to address the strengths of students." Higher scores on this scale are indicative that a participant uses (or plans to use) more inclusive practices when teaching. The scale measures the intended use of inclusive practices rather than actual practice of teachers.

Part Four. This part of the scale collected participants' brief demographic information (e.g. age, gender, contact with a person with a disability).

6.4. Data analysis

Exploratory factor analysis (EFA) was employed to investigate an underlying factor structure of the Inclusive Practices Scale. M*plus 7.0,* a popular software for structural equation modeling in social sciences (Muthén & Asparouhov, 2015) was used to run EFA. We chose Maximum log-likelihood (MLL) as the method of parameters estimation and Geomin oblique rotation as the method of rotation for EFA considering that the latent factors are likely to be correlated with each other (Browne, 2001). Parallel analysis was also used to guide comparison of model fit indices for competing factor models, and scale items were assessed for fit following the 0.40-0.30-0.20 rule (Howard, 2016), which stipulates satisfactory items loading on their primary factor above 0.40, loading onto alternative factors below 0.30, and with a difference of at least 0.20 between the primary and alternative factor loadings. In addition, factors were assessed for both statistical and conceptual fit of simple structure where each factor had a set of several highly-loaded items. We then conducted multiple linear regression analysis to examine the relationship between participants' intended use of inclusive practices and their attitudes to inclusive education and their efficacy for implementing inclusive practices.

7. Results

The purpose of this study was to examine the psychometric properties of a newly developed measure tool, the Inclusive Practices Scale, and probe the association between a few important variables such as teachers' attitudes, efficacy and intended use of inclusive practices. We first report the construct validity of the Inclusive Practices Scale based on the EFA results and Cronbach alphas values of the Inclusive Practices Scale as the scale reliability, and then present the predictive relationship of teachers' attitudes and efficacy on their use of inclusive practices.

7.1. Psychometric properties of the Inclusive Practices Scale

We included all 34 items of the Inclusive Practices Scale in the initial EFA. Given a final sample size of 352 (after listwise deletion) satisfied one common rule of thumb to ensure a participant-to-item ratio of 10:1, the data set of this study was appropriate for factor analysis. Prior to running EFA, we examined the correlation matrix of all items. Despite a few of the items correlated poorly with others, overall the correlations of most of the items ranged from medium (above 0.40) to high levels suggesting reasonable factorability. Initial EFA results also provided other evidence for reasonable factorability. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.97, above the commonly recommended value of 0.6, and Bartlett's test of sphericity was significant ($\chi 2 (325) = 7193.23$, $p < 0.001$). The communalities were all above 0.50 (see Table 1) further confirming that the scale items shared some common variance with each other. The initial eigenvalues showed that three factors have eigenvalues greater than one (explaining 57.53%, 4.89%, and 4.26% of variance respectively). The Scree Plot graphically revealed a similar factor pattern that the first three factors ran along a steep elevation compared with the rest of the

Table 1
Factor solution of EFA.

Item	Factor 1 (PIS)	Factor 2 (CSS)	Factor 3 (CAS)	Communality
1. Modify instruction to meet the diverse learning needs of students.	.772			.556
2. Plan instruction to address the strengths of students.	.664			.598
3. Relate learning activities to students' personal and family experiences.	.448			.559
4. Use a variety of instructional strategies within the learning activity to engage students.	.646			.709
5. Plan instruction to address interests of students.	.784			.666
6. Adapt materials and resources to meet diverse learning needs.	.715			.648
7. Design learning experiences that connect prior content knowledge to new learning.	.584			.568
11. Select curricular materials and resources that align with student learning goals.	.528			.644
12. Provide equal opportunities for students to ask questions.		.854		.705
13. Provide students with opportunities to interact with peers.		.851		.701
14. Ask effective questions that match instructional goals.		.453		.560
15. Respond appropriately to students' questions/comments.		.739		.686
16. Articulate high expectations of students.		.488		.535
19. Use strategies to motivate learners.		.419		.632
20. Provide regular opportunities for students to collaborate with others.		.600		.647
22. Provide frequent and appropriate feedback during class activities.		.488		.618
23. Create a safe learning environment where students feel encouraged to take risks.		.542		.647
24. Have established standards of conduct and they are clear to students.		.536		.624
26. Make test accommodations when necessary.			.682	.546
27. Collaborate with teammates to support student learning.			.560	.653
28. Regularly share information and/or best practices with colleagues to improve practice.			.658	.599
29. Engage with families to share information and strategies to enhance student learning.			.832	.701
30. Encourage students to reflect on what they have learned.			.510	.627
31. Use a variety of assessment strategies to measure student progress.			.662	.650
32. Use a number of strategies to prevent behavioural disruption in class.			.584	.496
34. Make each student learn according to his/her ability and potential.			.483	.633
Eigenvalue	14.96	1.27	1.11	
% of Total Variance	56.09%	3.4%	2.85%	
Total Variance				62.33%

factors. In terms of fit statistics, although chi-square test of model fit is significant ($\chi 2 = 999.99$, $p < 0.001$), the key fit indices are acceptable: Root Mean Square Error of Approximation (RMSEA) = 0.07 (90 Percent C.I., 0.065–0.077), Comparative Fit Index (CFI) = 0.92, Tucker Lewis Index (TLI) = 0.90 and SRMR = 0.033. According to the 0.40-0.30-0.20 rule (Howard, 2016), items with loadings greater than a cutoff of 0.40 were regarded as highly correlated with the factor. Items with cross loadings greater than 0.30 and cross loaded on two or three factors were viewed as problematic items. Among the 34 items, 8 items (Item 8, 9, 10, 17, 18, 21, 25, and 33) were identified as problematic items, as they had either high cross loadings (>0.30) on two or three factors or low loadings (<0.40) on the highest loaded factor (s). In conjunction with checking reliability analysis information (e.g., Cronbach's Alpha if item deleted), we re-examined problematic items and then decided to delete the above mentioned 8 items from the further analysis.

The EFA was run for the second time, with a total of 26 items (8 items deleted). After conducting the parallel analysis, the model with three factors stood out as the best fit for the sample matrix after consideration of the Eigenvalues, Scree Plot, and fit statistics. No further problematic item(s) were identified. So, the model with three factors was finally chosen to be the factor model of Inclusive Practices Scale with good fit indices: RMSEA = 0.067 (90 Percent C.I., 0.059–0.076), CFI = 0.94, TLI = 0.93 and SRMR = 0.030. Among all the 26 remaining items, 20 were shown to have high correlation with a specific factor, and each of the factors was highly correlated with at least eight items. Three factors explain a total of 62.33% of the variance for the entire set of scale items.

The factor loading solution is presented at Table 1. In addition, the three factors were labelled to be suited for the groups of items highly loaded onto each factor (Table 1). Naming of the three sub-scales of the Inclusive Practices Rating Scale was based on the items that loaded most heavily in each sub-scale. The first factor, *Personalized Instructional Strategies* (PIS), was composed of eight items, and items 2, 4, 5, and 6 were most heavily loaded and each addressed tailoring instructional materials and strategies to supports learners' interests, strengths, and engagement. For the second sub-scale, the *Communicative Scaffolding Strategies* (CSS), items 12, 13, 15 and 16 contributed heavily and related to communication with and between students and creating attainable challenge levels for all learners. The second factor *CSS* had ten items. Finally, the *Collaboration and Assessment Strategies* (CAS) sub-scale was influenced by items related to working with other members of the inclusive education team including colleagues and parents, as well as using appropriate assessment practices. Items 26, 28, 29 and 31 addressed these factors and loaded most heavily. The CAS sub-scale consisted of eight items.

To examine the reliability of the Inclusive Practices Rating Scale, we calculated Cronbach alphas values for each subscale. Cronbach alphas values were 0.92 for the PIS subscale, 0.94 for CSS subscale, and 0.92 for CAS subscale respectively. The overall Cronbach's alpha value of the Inclusive Practices Rating Scale was 0.97, indicating that this scale is highly reliable.

7.2. Relationship between attitudes, efficacy and use of inclusive practices

Prior to undertaking multiple regression analysis, means and standard deviations were calculated for participants' attitudes, efficacy and use of inclusive practices. ANOVA tests were conducted to determine if there were significant differences in the mean scores of participants' attitudes, efficacy, and use of inclusive practices scores across countries (see Table 2). Tukey *B* post hoc analyses were conducted to examine specific differences between country/institutions. It was found that attitudes of participants from Hong Kong were significantly lower when compared to participants from all other countries ($F = 39.89$, $p < 0.001$). Significant differences in participants' efficacy scores were also noted ($F = 15.66$, $p < 0.001$). Participants from Hong Kong had

Table 2
Attitude, teaching efficacy and inclusive practices mean scores.

	Attitudes towards Inclusion*	Teaching Efficacy for Inclusion**	Inclusive Practices**
	M (SD)	*M (SD)*	*M (SD)*
Australia ($n = 82$)	5.60 (0.84)	4.40 (0.53)	2.56 (0.46)
Canada One ($n = 39$)	5.73 (0.88)	4.75 (0.57)	2.98 (0.64)
Canada Two ($n = 113$)	5.91 (0.87)	4.66 (0.62)	2.77 (0.70)
India ($n = 69$)	5.61 (0.95)	4.76 (0.68)	2.92 (0.52)
Hong Kong ($n = 87$)	4.38 (0.96)	4.15 (0.48)	2.01 (0.50)

*Mean scores can range from 1 to 4 with higher scores suggesting that the participant uses inclusive practices more frequently.
**Mean scores can range from 1 to 7 with higher scores indicative of more positive attitudes.
***Mean scores can range from 1 to 6 with higher scores indicative of higher level of teaching efficacy to teach in inclusive classrooms.

significantly lower levels of efficacy when compared to participants from Australia (subset one) and the other three groups (Canada One, Canada Two, and India) of participants (subset two). While efficacy scores of participants from Australia were significantly higher than those from Hong Kong, their efficacy scores were significantly lower when compared to the participants from both institutions in Canada as well as those from India. Significant differences were also noted for participants' inclusive practices scores ($F = 34.95$, $p < 0.001$). Participants from Hong Kong had significantly lower inclusive practices scores when compared to participants from Australia and Canada Two institution (subset one) and India and Canada One institution (subset two). Statistically speaking, the inclusive practices scores of participants from Australia and Canada Two were very similar and significantly lower than the participants from Canada One and Indian institutes.

Multiple regression analysis (see Table 3) was conducted to determine if participants' attitudes and efficacy predicted the use of inclusive practices. Results of the regression analysis indicated both attitudes and efficacy were significant predictors and the two predictors explained a total of 37% of the variance on use of inclusive practices ($R^2 = 0.37$, $F\,(2,386) = 112.84$, $p < 0.001$). While checking the strength of two significant predictor variables based on the proportions of variance uniquely explained by each predictor (i.e., squared part correlation, sr^2) it was found that efficacy clearly made major contributions in explaining the variance ($\beta = 0.52$, $p < 0.001$; large effect size, $sr^2 = 0.46$) when compared to attitudes ($\beta = 0.17$, $p < 0.001$; medium effect size, $sr^2 = 0.15$).

We also conducted subsequent regression analysis for participants from different countries/institutions separately. Significant models emerged for all countries/institutions except India (Australia $R^2 = 0.21$, $F\,(2,81) = 11.70$, $p < 0.001$; Canada One $R^2 = 0.67$, $F\,(2,38) = 40.22$, $p < 0.001$; Canada Two $R^2 = 0.29$, $F\,(2,112) = 24.69$, $p < 0.001$; India $R^2 = 0.10$, $F\,(2,67) = 1.33$, $p = 0.27$; Hong Kong $R^2 = 0.32$, $F\,(2,86) = 21.35$, $p < 0.001$). Regression analysis revealed mean teaching efficacy scores ($\beta = 0.48$ for Australia; 0.72 for Canada One, 0.54 for Canada Two; 0.18 for India, 0.57 for Hong Kong) as the strongest predictor of participants' intended use of inclusive practices for participants from all institutions except India. Participants' mean attitude scores to teach in inclusive classrooms ($\beta = -0.06$ for Australia; 0.19 for Canada One, 0.03 for Canada Two; 0.03 for India, 0.04 for Hong Kong) did not contribute much in explaining their use of inclusive practices.

Correlations between attitude and efficacy and three factors of the IPS scales were also computed (using Pearson Product Correlations) to determine if all three factors were significantly related to the inclusive practice mean scores. Significant correlations ($p < 0.001$) were found between Factors one ($r = 0.39$), two ($r = 0.34$) and three ($r = 0.36$) of IPS with their mean attitude scores. Similarly significant correlations were also noted between Factors one ($r = 0.54$), two ($r = 0.51$) and three ($r = 0.59$) with their efficacy mean scores. It suggested that all three factors rather than any one factor was responsible for explaining the variance in participants' attitude and efficacy scores.

Table 3
Predicting use of inclusive practices from attitudes towards inclusion and efficacy to teach in inclusive classrooms (combined international sample).

Predictor	*b*	*SE b*	*β*	*t*	*sig*
Constant	−0.46	0.206		−2.25	0.25
Attitudes towards inclusion	0.10	0.028	0.165	3.65	0.00
Teaching efficacy	0.55	0.049	0.516	11.41	0.00

Note. $R^2 = 0.61$, Adjusted $R^2 = 0.37$, $F(2, 386) = 112.84$, $p < 0.001$.

8. Discussion

The study was undertaken to test the psychometric properties of a newly developed scale that can be used to determine if the intended use of inclusive practices could be predicted from participants' attitudes and efficacy scores. We found the newly developed IPS to be reliable and valid across different international contexts. The Inclusive Practices Scale demonstrated its usefulness generally and in the current research in particular. The scale could be a meaningful tool in determining educators' intentions to use inclusive practices. Intention is an extremely critical component in Ajzen's theory of planned behaviour and could be used as an important predictor of teachers' actual behaviour (Ajzen, 2005). The scale could be used by teacher educators and departments of education to determine the effectiveness of teacher education/professional learning programs. In the absence of observations during practicum, this scale could be a useful tool as a proxy to predict the likelihood a pre-service teacher would use inclusive practices. Future research can examine the usefulness of the scale by making concurrent classroom observations of the participants to determine the cross-validity of the scale. The scale can also be used to determine areas (aligned with three subscales) where teacher educators and departments of education could invest more content and resources to prepare both pre-service and in-service teachers. The EFA results revealed three factors that comprise the underlying dimension of the Inclusive Practices Scale based on the responses from teacher candidates in four countries. These factors align with features of good inclusive teaching practice identified in the literature (Jordan, Glenn, & McGhie-Richmond, 2010) and are recognizable features of the work of many classroom teachers. Together, information garnered from these sub-scales will not only guide professors and instructors in program design, but can also direct pre-service teachers in their self-directed efforts toward their development as inclusive educators. This scale will be useful in future studies, because it is of a manageable length in terms of the moderate number of questions for respondents, and because it demonstrated high reliability across international contexts, although a future exploration of the reliability of the scale in more

varied international contexts will be important. Further international validation of the scale is necessary and could result in a reduction of the items and could further enhance its usefulness across various global contexts.

In terms of the second research objective, which was to determine the association between use of inclusive practices with participants' attitudes, and their efficacy to teach in inclusive classrooms, our analyses indicated that the two predictors of attitudes and efficacy explained 37% of the variance. While both attitudes and efficacy were significant predictors, efficacy made the major contribution in explaining the variance when compared to attitudes. Teaching efficacy was the strongest predictor of participants' use of inclusive practices for all institutions except India, while participants' attitudes did not contribute much in explaining their use of inclusive practices.

This is notable for two reasons. First, the international research literature to this point has generally found and argued that positive teacher attitudes are one of the most significant factors in the success of inclusive education (Boyle, Anderson, & Allen, 2020). The results of this study do not challenge those findings and arguments, but they do perhaps temper the claims with respect to just how important positive attitudes are relative to other affective variables. Clearly, from the findings of this study, perceptions of efficacy can be said to be far more potent predictors of intentions for inclusive classroom practice than are attitudes. The combination of the two are more potent still. Teaching efficacy relates to both the heart and hands of inclusive educators (Sharma, 2018; Shulman, 2004), in terms of having positive beliefs about in one's own ability to practice inclusion, and perhaps this overlap smooths the way to actual use of practices that support inclusion. Clearly, a significant implication of this finding is that if we wish to prepare educators who frequently use inclusive practices, then we must make sure that educators have a high sense of efficacy and confidence to teach in inclusive classrooms. Past research shows that teaching efficacy could be improved by mastery experiences and vicarious learning (Sharma & Nuttal, 2016). Multiple opportunities to apply newly acquired skills in real classroom settings and opportunities to observe other successful inclusive teachers are likely to result in a better sense of efficacy in participants. This could eventually result in better intention among participants to include all learners.

The second notable finding, and one that requires more investigation, is that the Indian sample proved to be an outlier where perceptions of teaching efficacy seemed to not impact reports of inclusive teaching practice to any significant degree. This finding is interesting yet troublesome, as it supports claims that contexts may affect the reliability of the scales used to measure inclusion (Lüke & Grosche, 2018). It is important to note that the data collected from the Indian institute is not typical across the country. The participating institute is indeed an outlier in India: a major focus of the program in this institute was on inclusive education, and the content of the program was largely informed by the social model of disability. Further research using the Inclusive Practices Scale in both India and in other countries in addition to Canada, Australia, and Hong Kong will be necessary to investigate this question.

The degree to which both attitudes and self-efficacy for inclusive practice are determinants of reports of intention for use of inclusive practices by pre-service teachers tells us that it is a worthwhile endeavour to include this content in teacher education programs. Pre-service teachers benefit from the development of positive attitudes towards inclusion, along with confidence in their own efficacy when it comes to practice. The development of each of these factors can likely be fostered through robust theoretical course content, along with positive experiences with practical application in practicum settings.

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