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# Teachers' attitudes and self-efficacy on implementing inclusive education in Japan and Finland: A comparative study using multi-group structural equation modelling

## ABSTRACT

This study aims to explore relationships between teachers' attitudes, self-efficacy, and background variables regarding inclusive education by using a sample of 359 Japanese and 872 Finnish teachers. A multi-group structural equation modelling was conducted to find similarities and differences in how the background variables predict teachers' attitudes and self-efficacy. Experience in teaching students with disabilities had a positive effect on teachers' attitudes and self-efficacy in both countries. However, teachers' teaching career and the amount of inclusive education training affected them differently in Japan and Finland. The findings could be used to improve inclusive education training for pre- and in-service teachers.

## HIGHLIGHTS

- Teacher self-efficacy and attitudes on inclusion in Japan and Finland are examined.
- Testing measurement invariance showed cross-cultural validity of the used scales.

- The strongest predictor was experience in teaching students with disabilities.
- A longer teaching career had a positive impact on teachers' self-efficacy in Japan.
- The amount of inclusive education training affected positively only in Finland.

KEYWORDS: inclusive education, teachers, attitudes, self-efficacy, multi-group structural equation modelling, measurement invariance

## 1. Introduction

After the Salamanca Statement and Framework for Action on Special Needs Education was published (UNESCO, 1994), there has been a growing trend to develop national education systems towards inclusive education around the world. This trend has been further enforced by the UN Convention on the Rights of Persons with Disabilities (United Nations, 2006), which regards inclusive education as a universal human rights objective. The definition of inclusive education has been extended to school systems in which all children, including children from ethnic minorities, children from low socio-economic or otherwise disadvantaged background, and children with disabilities, can obtain access to their local schools (de Boer, Jan Pijl, Minnaert, & Tied, 2011; Mitchell, 2005; Author, 2009). However, in many countries, the scope of inclusive education is often limited to specific types of children. In Japan, for example, inclusive education is still considered as an issue on how to educate students with disabilities in mainstream classrooms and how to arrange special needs education for those who need it (Forlin, Kawai, & Higuchi, 2015). Similarly, in Finland, inclusive education is most often understood as a pragmatic approach to offering the best possible support for those who need it, particularly students defined as having Special Educational Needs (SEN) (Author et al., 2012).

Although providing quality education for all children is a global agenda (United Nations General Assembly, 2015), there are various ways to apply the concept of inclusion to policies and practices in each country, according to cultural and historical background (Artiles & Dyson, 2005; Author et al., 2012). Therefore, comparative analysis needs to consider cultural-historical factors to understand what inclusive education means and how its meaning may be influenced by social, political, economic, and cultural histories (Author et al., 2012). Furthermore, outcomes of comparative studies may create new ideas and approaches for developing inclusive education in different countries (Author et al., 2012). Even though many studies compare inclusive education practices as implemented in several countries, only few are available focusing on Japan and other countries.

Japanese and Finnish education systems have gained prominence because the students have showed high academic achievement in international studies such as the OECD Programme for International Student Assessment (PISA) (e.g., Bulle, 2011; Green, Preston, & Sabates, 2003; OECD, 2011; Author, 2009; Schleicher, 2009). On one hand, the two countries are similar in that both: (a) have relative cultural homogeneity; (b) perform consistently well in international comparative studies like PISA; (c) provide nine years of free, compulsory education; and (d) show socio-economically equitable variance of learning outcomes (OECD, 2011; Schleicher, 2009). On the other hand, there are several differences. The Japanese education system is one of the most meritocratic and competitive in the world (Bulle, 2011). Structural elements of this system include large class sizes, longer schooling hours, and detailed national curriculum standards that teachers throughout the country follow (OECD, 2011). The Finnish education system, by contrast, is based on social cohesion and trust, small class sizes, relatively short schooling hours, concise national core curriculum, and high autonomy for municipalities, schools, and teachers (OECD, 2011). As can be expected, Japan and Finland have applied different approaches to inclusive education. Therefore, the main purpose of this study is to compare elements of inclusive education in Japan and Finland – specifically, teachers' attitudes and self-efficacy concerning inclusive education in these two countries.

### *1.1. Inclusive education in Japan*

After World War II, the Constitution of Japan based on democracy was promulgated. In the Constitution, the right to education was guaranteed for everyone, and several amendments to policies and school reforms were introduced to develop education systems correspondingly (Nishinaka, 2012). For students with disabilities, the compulsory special education system was started in 1979 (Muta, 2002). Until then, many students with disabilities did not have access to schools and stayed at home (Nagano & Weinberg, 2012). After this school reform, even children with severe disabilities gained access to public education (Muta, 2002); nevertheless, students with disabilities were educated separately in special schools (Nagano & Weinberg, 2012). Criticism against this segregated education was increasing in response to the worldwide trend towards inclusive education (Shimono, 2016), and the resource room system was established in 1993 in which students with mild disabilities could receive special education services while spending most of their time in regular classrooms (Muta, 2002; Nagano & Weinberg, 2012). Besides, the Japanese government replaced the special education system called *Tokushukyoiku* with the special needs education system called *Tokubetsushienkyoiku* in 2007, and this was a major turning point for Japanese inclusive education (Miyoshi, 2009; Shoji, 2015). The aim of this new system was to provide appropriate support for children with individual needs (Nagano & Weinberg, 2012). Until that time, special educational support was offered mainly for students belonging to special schools or special classes, but under the current system, officially everyone who needed support can obtain it at any type of school (Shoji, 2015). According to the Committee of Elementary and Lower Secondary Education in the Central Council for Education (2012), municipalities or schools must provide 'reasonable accommodations' for students with disabilities. This term was emphasised in the Article 24 of the UN Convention on the Rights of Persons with Disabilities and was defined as making necessary and suitable modifications and adjustments to ensure the rights of children with disabilities to receive education equal to that of other children without imposing a disproportionate or undue burden on municipalities or schools (United Nations, 2006). Furthermore, in 2013, the educational placement decision system for students with disabilities was revised through a partial amendment to the Enforcement Ordinance of the School Education Law (MEXT, 2013). In the new system, children with disabilities who formerly were persuaded to enrol in special schools gained alternative choices for educational placements

(Forlin et al., 2015). Although an education board of each municipality determines school enrolment, it must respect children's and guardians' opinions as much as possible (MEXT, 2013). Overall, the school reform towards inclusive education was promoted rapidly within 10 years after the long history of segregated education in Japan.

Several challenges of inclusive education have been pointed out since the new special needs education system was established. First, Miyoshi (2009) argues that although this system is based on the concept of normalization, actual practices in schools differ from the concept, and segregated education continues. According to the MEXT (2016) report, there were 1,114 special needs schools and 54,586 special needs classes at the primary and the secondary level. The number of pupils studying in such schools or classes is increasing, and this is a retrograde phenomenon towards inclusive education (Institute for Global Education and Culture, 2007). Additionally, it is suggested that children with disabilities and their guardians are not able to fully exercise their rights to state their opinions, as there is insufficient support not only in the law but also in practice to ask for necessary help in regular classrooms (Nagano & Weinberg, 2012). In the same vein, Watanabe (2012) claims that no legal regulations define reasonable accommodations for children with disabilities, with that task left to the discretion of municipalities and schools.

### ***1.2. Inclusive education in Finland***

Since Finland's independence in 1917, Finnish educational policies and systems have been constructed and reformed several times to improve basic education. According to Halinen and Järvinen (2008), the development of the Finnish education system towards inclusive education has been threefold: (a) the stage of 'access to education' in which the general compulsory education was developed according to the Compulsory School Attendance Act in 1921; (b) the stage of 'access to quality education' in which the current comprehensive school system was adopted in the 1960s and 1970s; and (c) the stage of 'access to success in learning' in which students' needs and quality instruction were discussed in the 1990s. Perhaps the most drastic change during the past 50 years occurred after the Educational Act was passed in Parliament in 1968 starting the nine-year comprehensive school system (Halinen & Järvinen, 2008; Kivirauma & Ruoho, 2007; Author, 2009). After the reform, the students previously divided

into two streams – one practically oriented and the other with academic orientation – were able to obtain nine years of comprehensive schooling (Halinen & Järvinen, 2008; Kivirauma & Ruoho, 2007; Author, 2009). From the perspective of inclusive education, an important element introduced as a result of the reform was part-time special education (Author, 2009). This part-time special education was created to cope with pedagogical challenges expected due to students' increased heterogeneity (Kivirauma & Ruoho, 2007). The number of students receiving part-time special education increased continuously until 2010, when the system was again reformed (Author et al., 2012). However, traditional special education continued to exist and grow along with the new type of special education. Increasing numbers of students with special needs were placed in separate special classes or schools (Halinen & Järvinen, 2008).

Children with severe disabilities had been exempted from education, however, and only in 1997 were municipalities obliged to include them in comprehensive education (Jahnukainen & Korhonen, 2003). Since then, practically all children – even those with severe disabilities – have had equal rights of access to the same nine-year basic education (Graham & Jahnukainen, 2011; Halinen & Järvinen, 2008).

In 2010, a major reform of special education occurred. It was preceded by a strategy of special education (Ministry of Education and Culture, 2007), amendments to the Act of Basic Education (Parliament of Finland, 2010), and updated curriculum guidelines (FNBE, 2010). According to the renewed model, there are three tiers of support for students: (a) general or universal support; (b) intensified support; and (c) special support. General support is offered for every student. In essence, it is about providing good education services, including differentiation, support teaching, part-time special education, and guidance, when needed (FNBE, 2016). These supports are launched quickly and do not involve official decisions but rather are practical pedagogical responses to observed challenges (Björn, Aro, Koponen, Fuchs, & Fuchs, 2016). Intensified support can be started when teachers and other school experts observe that general support is not enough for a student (Björn et al., 2016). A pedagogical plan for the support will be made, and the support is continued as long as needed. If intensified support is not adequate, a pedagogical review will be conducted by the multi-professional school team, and an individual support plan will be created (Björn et al., 2016). The beginning of this tertiary level support involves an administrative decision of ascribing the student a status of needing special education support, which parents can challenge (FNBE, 2016).

Finland's history of inclusive education is complex. On one hand, its education system has proven to be of good quality and high in equity, and some researchers have argued that extensive support for students with SEN is an important factor behind the positive development (Kivirauma & Ruoho, 2007; Author et al., 2006; Author, 2009). On the other hand, the number of students enrolled in special education rose continuously until 2010, when special education was reformed. At that time, more than 8.5 % of students were identified as having SEN, with almost 23% of all students receiving part-time special educational support (Official Statistics of Finland, 2016).

Thus far, it seems that the Finnish education system has succeeded in providing flexible education that is available to all students; however, there are some challenges concerning inclusive education. First, although the law and curriculum guidelines support inclusion, they do not strongly demand it, and municipalities are left to organise their education network. There is evidence that municipalities' decisions differ with regard to inclusion, and there is no guarantee of an equal and constant level of inclusiveness in schools, as previously predicted by Halinen and Järvinen (2008). Furthermore, although the number of students in special schools has been declining dramatically in Finland every year (Jahnukainen, 2011), many students with disabilities are still taught in special classes (Jahnukainen, 2015). There is also renewed pressure by public media to keep special classes, and students with behavioural problems are often mentioned as a group that should not be included in the mainstream (TUEF, 2009).

### ***1.3. Teacher training for inclusive education in Japan and Finland***

Undoubtedly, teachers play an important role in implementing inclusive education into practice, and pre- and in-service teacher training for inclusive education is fundamental for successful implementation. The teacher education systems in both Japan and Finland are organized in a similar way that teacher education programmes for classroom teachers, subject teachers and special education teachers are respectively offered (Author et al.2012, Kobayashi, 1993). However, there are several differences in structure and content of the teacher education programmes across these two countries. For instance, Japanese classroom teacher certificates are classified into three levels, and the first-class certificates are given to those who finished

four years of study in universities (Kobayashi, 1993). On the contrary, it is required to complete master's degree studies to become a classroom teacher in Finland (Author et al., 2012).

To improve teacher training for inclusive education, a part of the Ordinance for Enforcement of the School Teacher's License Act was revised in 2017 in Japan, and it now requires at least one credit course regarding 'understanding of infants and students who need special support' as mandatory to get a teacher certificate (MEXT, 2017b). Earlier there was a conventional stipulation to include contents related to 'understanding of infants and students with disabilities or special needs' in a course of basic educational theory, but how much students were expected to learn was left to the discretion of each university and quality varied (Kato, 2016). Consequently, a number of studies have reported that Japanese teachers are anxious about their role in inclusive practices due to inadequate preparation (e.g., Forlin et al., 2015; Fujii, 2014; Ueno & Nakamura, 2011). Similarly, it has been shown that while in-service teachers had relatively high interest in inclusive education and agreed that such education is essential, their level of knowledge was low, and they showed high anxiety regarding inclusive practices in their own classrooms (Ueno & Nakamura, 2011). Moreover, even though existing in-service training, including inclusive education training, is systematically improved by municipalities, teachers often argue that the in-service training as a whole is not attractive because it is usually organised based on lecture style presentations (Sakakibara, Yamamoto, & Kobayashi, 2005).

On the other hand, though Finnish universities have autonomy to decide what is taught in their teacher education programmes (Author et al., 2012), inclusive education and multicultural studies contents are embedded in several courses (Naukkarinen, 2010). One of the biggest challenges, not only in Finland but also for many other European countries, is how to maintain high-quality teachers and improve their expertise in responding to growing diversity and multiculturalism (Halinen & Järvinen, 2008; OECD, 2011). One specific challenge in the Finnish teacher education system is that different types of teachers (e.g., classroom teachers, subject teachers, and special education teachers) are educated in separate degree programmes that have surprisingly few courses in common (Author et al., 2012). This type of initial teacher training does not optimally support teachers' abilities and confidence in

collaboration, which is essential for the implementation of inclusive education (Author et al., 2012; Authors, 2017).

#### ***1.4. Teachers' self-efficacy and attitudes towards inclusive education***

Extensive previous research has shown that teachers are required to acquire and maintain not only skills and knowledge but also positive attitudes towards inclusive education if they are to be effective inclusive practitioners (e.g., Avramidis & Norwich, 2002; de Boer et al., 2011; Forlin, Cedillo, Romero-Contreras, Fletcher, & Hernandez, 2010). Previous literature has highlighted several variables that influence teachers' attitudes towards inclusive education. Avramidis and Norwich (2002) have reviewed a number of studies on teachers' attitudes towards inclusive education and concluded that the variables related to attitudes could be divided into three types. These types include: (a) child-related variables, including severity and type of children's disabilities; (b) teacher-related variables, consisting of teachers' gender, years of teaching experience, amount of training, and experience with persons with disabilities; and (c) educational environmental-related variables, composed of physical environment and support from colleagues and specialists.

Moreover, previous studies have revealed that teachers' attitudes towards inclusive education appears to be positively related to their self-efficacy in implementing inclusive practices (Meijer & Foster, 1988; Author et al., 2012; Soodak & Podell, 1993; Weisel & Dror, 2006; Authors, 2017). The term 'teacher self-efficacy' is generally defined as teachers' beliefs in their abilities to have a positive effect on student development in academic outcomes or interests and motivation (Bandura, 1997; Gibson & Dembo, 1984). According to Soodak and Podell (1993), US teachers with higher self-efficacy are more likely to accept students with learning and/or behavioural problems in regular classrooms. In addition, Authors (2017) recently found that Japanese teachers' self-efficacy in collaboration and managing problematic students' behaviour is the most important variable for predicting teachers' attitudes towards inclusive education.

Attitudes and self-efficacy regarding inclusive education have been discussed in respect of various cultures. Although it has been suggested that teachers typically hold negative or

neutral attitudes towards inclusive education (de Boer et al., 2011), a number of studies have shown varying attitudes between countries based on their cultural and historical background. For example, some studies pointed out that teachers' attitudes are likely to be less positive in non-Western countries than in Western countries (Leyser, Kapperman, & Keller, 1994; Author et al., 2008); however, Authors (2017) found that Japanese teachers had neutral attitudes towards inclusive education. Concerning the relationship between attitudes and self-efficacy in different countries, Author et al. (2012) determined that teachers' efficacy in collaboration with parents and other staff members predicted their positive attitudes towards inclusive education in both Finland and South Africa, but efficacy in managing students' problematic behaviour predicted attitudes only in Finland. They emphasised that those results need to be explained with cultural-historical contexts in mind.

### ***1.5. Test measurement invariance***

Although cross-cultural comparative analysis provides researchers with useful insights, many challenges remain. One challenge is that the same educational concepts (e.g., 'inclusion' or 'disabilities') may have different meanings in different countries (Mitchell, 2005). Furthermore, even though identical instruments are used to measure the same educational concepts, people from each country may have specific cultural response styles that may depend on such things as collectivism/individualism of a culture and language differences (Vieluf, Kunter, & Van de Vijver, 2013). The two countries in the current study differ in cultural background. For example, Japan is founded on a collectivist society, while Finland has a more individualist society (Nishimura, Nevgi, & Tella, 2008), and the two countries differ completely in their languages. One way of determining whether the same constructs are being measured in different independent groups is to test measurement invariance (Chen, Sousa, & West, 2005). Recently, a growing body of literature has recognised the importance of testing the equivalence of measured constructs in cross-cultural research (Eid, Langeheine, & Diener, 2003; Hoferichter, Raufelder, Eid, & Bukowski, 2014; Milfont & Fischer, 2010; Scherer, Jansen, Nilsen, Areepattamannil, & Marsh, 2016). Nonetheless, few studies have tested the measurement invariance between countries regarding teachers' self-efficacy and attitudes towards inclusive education. Therefore, the objectives of this research are as follows: First,

determine whether we measured equivalent structures in Japan and Finland. Second, investigate the two countries' similarities and differences regarding teachers' self-efficacy and attitudes towards inclusive education.

### ***1.6. Research aims***

This study has four primary aims:

- (1) To analyse whether the same constructs of the two scales used in this study are found in both the Japanese and Finnish data.
- (2) To assess whether teachers' attitudes towards inclusive education can be predicted by their self-efficacy for inclusive practices in Japan and Finland.
- (3) To examine which teachers' background variables predict self-efficacy and attitudes concerning inclusive education, and to find out what similarities and differences exist between the Japanese and Finnish predictive models.
- (4) To explore whether teachers' background variables are indirectly related to attitudes towards inclusive education via self-efficacy for inclusive practices in the Japanese and Finnish samples.

## **2. Method**

### ***2.1. Participants***

All together 1,231 in-service teachers working in primary and secondary schools from Japan and Finland participated in this study. First, the Finnish data were collected as a part of the 'Comparative Analysis of Teachers' Roles in Inclusive Education' project in 2010, and the Japanese data were collected later in 2014. A total of 359 Japanese in-service teachers (53.5% female, 43.7% male;  $M_{age} = 42.41$ ,  $SD = 11.82$ , age = 22–65) from the eastern and western parts of Japan, including the Tokyo metropolis and eight other prefectures, answered a questionnaire about their attitudes and self-efficacy regarding inclusive education. A return

rate of questionnaires was 48.6% in Japan. The Finnish data were collected from six small to medium-sized municipalities in the eastern Finland region and from one big municipality in the south-west region, and the total number of Finnish in-service teachers was 872 (73.9% female, 20.4% male;  $M_{age} = 44.46$ ,  $SD = 9.07$ , age = 22–67). Although the exact return rate was not reported for the Finnish sample, an estimation rate can be around 60% (Author et al., 2012). Table 1 provides a summary of the participants' demographic background information. The ratio of female to male, the mean age and the average years of teaching were roughly represented the general teacher population in both countries (MEXT, 2017a; OECD 2013).

[Table 1 near here]

## ***2.2. Measures***

In this study, the data were collected using a questionnaire. The questionnaire contained a cover letter that proposed the objectives of the study and the confidentiality of the data. It also explained that participation was voluntary and that the participants could withdraw at any point. Participants answered the questions related to their background information and the two scales below.

Teachers' attitudes towards inclusive education were measured using the Sentiments, Attitudes, and Concerns about Inclusive Education Revised (SACIE-R) scale (Forlin, Earle, Loreman, & Sharma, 2011). Although the scale originally contains 15 items, Author et al. (2012) indicated that the two items had small standardised factor loadings and did not fit well to a factor model for the attitudes. For this reason, these two items were removed from the original version of the SACIE-R scale. Only 13 items were adopted in the questionnaire. A four-point Likert scale, from 1 (strongly disagree) to 4 (strongly agree), was used to answer the questions. Some items were reverse coded so that high scores on the scale indicate positive attitudes towards inclusive education. The reliability of this scale was examined in previous studies. Cronbach's  $\alpha$  was .75 in the Japanese sample (Authors, 2017) and .74 in the Finnish sample (Author et al., 2012). The scale also contains three sub-scales that examine different kinds of attitudes, ranging from general to more concrete attitudes regarding teachers' own

work. The first subscale, 'Sentiments', contains items that measure participants' general attitudes towards having social contacts with people with disabilities. The second sub-scale, 'Attitudes', contextualises attitudes towards work in school and measures participants' overall acceptance of students with difficulties in mainstream classes. The third and final sub-scale is specific to teachers' own work and measures their 'Concerns' about teaching students with disabilities in their classrooms (Forlin et al., 2011; Author et al., 2012).

Teacher Efficacy for Inclusive Practices (TEIP) scale (Sharma, Loreman, & Forlin, 2012) was used to assess participants' self-efficacy for inclusive practices. The scale consists of 18 items, and participants responded to a six-point Likert scale, from 1 (strongly disagree) to 6 (strongly agree). Higher TEIP scores indicated higher self-efficacy for inclusive practices. Previous studies have shown that this scale has high reliability. In the Japanese sample, Cronbach's  $\alpha$  was .93 (Authors, 2017), and in the Finnish sample, Cronbach's  $\alpha$  was .88 (Author et al., 2012). It was suggested that the scale consists of three sub-scales (Sharma et al., 2012). The 'Efficacy in instruction' sub-scale has items that measure participants' efficacy belief in applying suitable approaches to develop an inclusive classroom. The 'Efficacy in collaboration' sub-scale contains items regarding participants' efficacy belief in working together with students' parents and school staffs. The third sub-scale, 'Efficacy in managing behaviour', includes items that evaluate participants' efficacy belief in dealing with students' problematic behaviour.

Since the original versions of the SACIE-R and TEIP scales were written in English, the researchers translated them into Finnish in 2010 and into Japanese in 2014. For the Japanese version, both of the scales were already translated into Japanese in previous studies (Forlin, 2013; Forlin et al., 2015; Yoshitoshi, 2014), and these previous translations were used as a reference. The translations were proofread by an authorised language translator for the Finnish version and by a licensed guide interpreter for the Japanese version. To ensure that the translated versions were as similar to the original versions as possible, corrections were discussed and agreed on between the language experts and researchers.

### *2.3. Statistical analyses*

All analyses were done using the Mplus version 7.0 statistical programme for Mac (Muthén & Muthén, 1998). Model parameters were estimated using the full information maximum likelihood method with a robust standard error and scale corrected chi-square value (MLR estimator in Mplus). Any missing values were supposed to be Missing At Random (MAR). Since the likelihood ratio test has been deemed sensitive to the sample size (MacCallum, Browne, & Cai, 2006), a model fit was evaluated using Standardised Root Mean Square Residual (SRMR) and Root Mean Square Error of Approximation (RMSEA). A cut-off value was .08 for SRMR and .06 for RMSEA, both of which indicated a good fit, and these two indices worked well using the two-index strategy (Hu & Bentler, 1999). Furthermore, to compare equalities between groups, we allowed for small differences using the method presented in MacCallum et al. (2006). The allowed difference between groups was defined using RMSEA with values of .052 to .058. With these, we obtained the critical value of chi-square ( $\chi^2$ ) differences using noncentral chi-square distribution.

The analysis followed three major stages using the Multi-Group Confirmatory Factor Analysis (MGCFA). In the first stage, we tested measurement invariance for both scales. First, theoretically driven CFA was estimated without any constraint between groups. With the help of modification indices, we re-specified the model, adding some error covariates between items to get an acceptable fit. Moreover, factor loadings were set to equal between groups, and the model was compared to the unconstraint model. Finally, factor loadings and intercepts were set to equal between groups to investigate whether there was scalar invariance.

If first-order factors are highly correlated, and it is assumed that higher-order factors explain the relations between the first-order factors, a second-order factor model is suitable (Chen et al., 2005). Since the above conditions were met in the TEIP scale, it was hypothesised that there was the second-order factor structure of the TEIP scale with the three primary factors as the lower-order factors, and a 'General teacher self-efficacy for inclusive practices' as the higher-order factor. Since this solution is consistent with the previous study that also used the TEIP scale, we named the second-order factor after that of the study (Author et al., 2012). In the second stage, first, configural invariance was tested for the second-order factor to ensure

that all factor loadings are statistically significant. Next, the factor loadings were set to equal for the second-order factor.

The third stage was to test the hypothetical predictive model for explaining teachers' attitudes and self-efficacy towards inclusive education. We used four background variables: (a) teaching career in years; (b) experience in teaching students with disabilities (ranging from 1 = very low to 5 = very high); (c) experience in interactions with persons with disabilities (1 = no or 2 = yes); and (d) the amount of inclusive education training (ranging from 1 = none to 5 = very high level). These variables were added to the second-order factor model to examine if they could predict teachers' attitudes and self-efficacy and if these paths were similar or different between groups. These four variables were chosen based on previous studies (Avramidis & Norwich, 2002; Author et al., 2013), which showed that teachers' background variables could influence their attitudes. In addition, this model included both mediating and direct effects. Thus, mediation analysis (Sobel, 1982) was conducted to assess the indirect effects of the four background variables. In other words, it was examined whether the four background variables lead to changes in self-efficacy for inclusive practices, which in turn affects their attitudes towards inclusive education.

### 3. Results

#### *3.1. Testing first-order factor model*

The theoretically driven factor structure was replicated in both countries for the first stage, and all factor loadings with first-order factors were statistically significant. Then measurement invariance was investigated. First, configural invariance was tested using a multi-group model. As presented in Table 2, Model 1 had an adequate fit (RMSEA = .052 and SRMR = .061) with the data supporting the configural validity between the Japanese and Finnish samples. Model 2 also had an acceptable fit (RMSEA = .053 and SRMR = .071) when tested for metric invariance. This additional constrains did not result in a significant difference between Model 1 and Model 2 when using an analysis of noncentral chi-square distribution. The result provided support for the metric invariance between the two groups. Third, scalar invariance

was examined (Model 3). Table 2 below indicates that Model 3 provided an insufficient fit for full scalar invariance (RMSEA = .067 and SRMR = .093). Modification indices were studied, and it revealed that the insufficient fit for the full scalar invariance model was due to a lack of invariance in some item intercepts. The constrains of the SACIE-R scale item 1, 3, 5, and 11 and the TEIP scale item 1, 5, 13, 17, and 18 were relaxed, in which the intercepts of three to five items in each factor were still set invariant across groups except 'Sentiments' factor from which two of three intercepts were set equal. Partial scalar invariance model (Model 4) yielded an acceptable fit (RMSEA = .055 and SRMR = .073) and did not result a significant difference using the analysis of noncentral chi-square distribution. According to Steenkamp and Baumgartner (1998), if partial scalar invariance is achieved, it is sufficient to continue with further tests of invariance. Therefore, we move on to the next step of analysis based on the partial scalar invariance model.

### *3.2. Testing second-order factor model*

In the second stage, a second-order factor model for the TEIP scale was tested. All three primary factors had high loadings (1.022, .887, and .840 for the Japanese sample and .894, .815, and .709 for the Finnish sample, respectively). The second-order factor was named the 'General teacher self-efficacy for inclusive practices'. First, an unrestricted model for the second-order factor (Model 5) was tested. In this model, the factor loadings for the second-order factor were freely estimated. It can be seen from the data in Table 2 that Model 5 had an adequate fit to the data (RMSEA = .055 and SRMR = .075). Next, the second-order factor loadings were constrained to be equal across groups (Model 6). The RMSEA was .056, the SRMR was .079, and the non-central chi-square distribution test was not significant. It is evident from the results that the factor loadings of the second-order factor were invariant across the Japanese and Finnish samples.

[Table 2 near here]

### *3.3. Testing hypothetical predictive model*

In the third stage, a hypothetical predictive model (Model 7), in which the four background variables were added to the second-order factor model, was tested. This model had an acceptable fit (RMSEA = .058 and SRMR = .082). According to modification indices, several regressions and covariates were included into the model (Model 8), and these additions resulted in an adequate fit (RMSEA = .055 and SRMR = .075). The result of Model 8 was presented in Figure 1. Panel A represents the Japanese sample and Panel B represents the Finnish sample.

[Figure 1 near here]

Furthermore, what similarities or differences can be found in the regressions of the four background variables on the efficacy and attitudes factors were examined across groups. As presented in Table 3, the paths from 'Interactions with persons with disabilities' to 'Sentiments' were statistically significant in both groups. Thus, in both countries, teachers who have had the relationships with persons with disabilities had more positive attitudes about interacting with persons with disabilities. In addition, the paths from 'Experience in teaching students with disabilities' to 'General teacher self-efficacy' and to 'Concerns' were statistically significant in both countries. The result indicated that both Japanese and Finnish teachers who had taught students with disabilities had higher general self-efficacy and fewer concerns about including students with disabilities in their own classrooms.

On the other hand, the paths from both 'Interactions with persons with disabilities' and 'Teaching career' to 'General teacher self-efficacy' were significant only in the Japanese data. This indicated that Japanese teachers who have had the relationships with people with disabilities and/or longer teaching experience have higher general self-efficacy. The paths from 'Amount of inclusive education training' to 'Attitudes', 'Concerns', and 'General teacher self-efficacy' were statistically significant only in the Finnish sample, as can be seen from Table 3. It is noteworthy in this data that the amount of inclusive education training did not have any significant effect on attitudes and self-efficacy towards inclusive education in the Japanese

sample. Finally, the path from ‘Teaching career’ to ‘Attitudes’ was significant even though it was negative in Finland. That is, Finnish teachers who have taught longer have more negative attitudes about accepting students with disabilities into mainstream classes.

[Table 3 near here]

### ***3.4. Testing indirect effects***

Finally, indirect effects were tested in both groups. As shown in Table 4, for the Japanese data, the indirect paths from ‘Interactions with persons with disabilities’ to ‘Sentiments’, ‘Attitudes’, and ‘Concerns’ via ‘General teacher self-efficacy’ were significant. Although there were no direct effects from ‘Teaching career’ to the three attitude factors, there were the indirect effects to all of them via ‘General teacher self-efficacy’. The indirect paths from ‘Experience in teaching students with disabilities’ to all three factors of attitudes towards inclusive education via ‘General teacher self-efficacy’ were also significant. These results led to the conclusion that ‘General teacher self-efficacy’ serves as a mediator between the three background variables and teachers’ attitudes towards inclusive education in Japan. In the Finnish sample, the indirect paths from ‘Amount of inclusive education training’ to ‘Sentiments’, ‘Attitudes’, and ‘Concerns’ via ‘General teacher self-efficacy’ were significant. Moreover, the indirect paths from ‘Experience in teaching students with disabilities’ to all three factors of attitudes towards inclusive education via ‘General teacher self-efficacy’ were also significant. In summary, these results show that two teachers’ background variables, ‘Amount of inclusive education training’ and ‘Experience in teaching students with disabilities’, mediate ‘General teacher self-efficacy’ to teachers’ attitudes towards inclusive education in Finland.

[Table 4 near here]

## 4. Discussion

The starting point of this research was to investigate whether the two scales used in this study, SACIE-R and TEIP, were measuring the same constructs in both Japan and Finland. Measurement invariance was tested in order to answer this question. The achievement of full metric invariance indicates that the participants in the two countries responded to the items in the same way (Steenkamp & Baumgartner, 1998). In addition, the achievement of full scalar invariance implies that differences in the means of item responses can be regarded as differences in the means of latent variables regardless of which group the participants belong (Marsh et al., 2017; Steenkamp & Baumgartner, 1998). Although the full scalar invariance was not achieved in this study, relaxing four constraints for the SACIE-R scale and five constraints for the TEIP scale resulted in substantial improvement in the model fit. It has been mentioned that if at least two items have invariant factor loadings and intercepts, cross-national comparisons of factor means can be meaningful (Steenkamp & Baumgartner, 1998). Since the results of the current study met this criterion, it is very probable that there is an adequate universality in the structures of teachers' attitudes and self-efficacy on implementing inclusive education even though some items have a different degree of association with each contributing factor.

The second objective of this study was to determine whether teachers' self-efficacy for inclusive practices could be a predictor of their attitudes towards inclusive education in both countries. The results indicate that a higher-order factor model is reasonable considering the high correlations between three factors of self-efficacy. Hence, the model consists of the second-order factor named 'General teacher self-efficacy for inclusive practices' and three first-order factors of the TEIP scale adopted in the present study. This result is consistent with the findings of Author et al. (2013), who suggested that teachers' self-efficacy for inclusive practices can be seen not only as multi-dimensional but also as unidimensional phenomena. In light of the higher-order factor model, the results of the current study, as well as those of earlier studies (Author et al., 2012; Authors, 2017), confirm that teachers' attitudes towards inclusive education can be predicted by teacher self-efficacy for inclusive practices in both Japan and Finland.

The main aim of the current study was to explore whether there are similarities and differences in how teachers' background variables directly and/or indirectly predict their attitudes and self-efficacy on implementing inclusive education across the two countries. First, the results indicate that teachers' close relationships with persons with disabilities (see Figure 1, 'Interactions with persons with disabilities') improved their attitudes towards interacting with persons with disabilities ('Sentiments') in both samples. It should be noted that interactions with persons with disabilities did not directly affect teachers' 'Concerns' about including students with disabilities in their own classrooms or their more general 'Attitudes' towards inclusion in either country. In other words, an experience of contact with persons with disabilities is not enough to directly reduce teachers' concerns about teaching students with disabilities. However, 'Interactions with persons with disabilities' is indirectly and positively related to teachers' attitudes as measured by all three sub-scales via their self-efficacy in Japan. Thus, having social contact with persons with disabilities helps to improve Japanese teachers' self-efficacy and, consequently, changes their attitudes towards inclusion in a positive way. Of particular importance is that this effect is most significant on teachers' concerns about including students with disabilities in their own classes.

Second, 'Experience in teaching students with disabilities' predicted a lower level of 'Concerns' for teachers with regard to implementing inclusive practices as well as their general self-efficacy for inclusive practices in both Japan and Finland. Moreover, 'Experience in teaching students with disabilities' had positive indirect association with global attitudes via self-efficacy across the two countries. These results indicate that not only social contact but also experience in teaching students with disabilities are important in changing teachers' overall attitudes in a positive direction. These findings corroborate the ideas of Avramidis and Norwich (2002), who reviewed several studies and suggested that specific experience with children with SEN is important in influencing teachers' attitudes positively towards inclusive education. Nonetheless, our findings reveal more detailed information about specific types of contact experience that affect their particular attitudes towards inclusive education.

Third, one interesting finding in this study was that teachers' number of years of teaching experience ('Teaching career') worked differently in Japan than in Finland, although the values of the regression coefficient were quite small for both countries. In the Japanese sample, more years of teaching predicted teachers' higher general self-efficacy directly and

their overall attitudes towards inclusion indirectly, but not in the Finnish sample. This result is in agreement with the previous study showing that a teaching career was not related to teachers' self-efficacy in managing student behaviour in the Finnish and South African samples but had a positive relationship in the Chinese sample (Author et al., 2013). This may be because, in the Finnish sample, the association between the teaching career and self-efficacy could be nonlinear, with fluctuations throughout the career span (Klassen & Chiu, 2010), and this process, when it increases/decreases, may not be universal (Bandura, 1997). The results could also correlate with the cultural-historical background of each country and not only with the teachers' educational background. Japan is a hierarchical society, and Japanese people highly respect elders in general (Nishimura et al., 2008). Thus, the more experience Japanese teachers gain, the more confident they may become in their practices. In contrast, Finnish people respect the teaching occupation; it is considered one of the most attractive career options (Simola, 2005). Accordingly, teacher education programmes are highly valued and difficult to get into (Author et al., 2012). Thus, if teachers can pass an entrance exam for a teacher education programme, that fact itself could affect their self-efficacy. Another possible explanation is that Japan has a position classification system (MEXT, 2007) in which teachers can be promoted to higher positions (e.g., leading teacher, chief teacher, vice principal, and principal) if they obtain specific in-service training and pass the exams. This process usually correlates with their teaching career. In contrast, Finland has no such promotion options, other than becoming a principal. Hence, in Japan, career experience-related promotion options could lead to gaining confidence. However, more research is required to determine what kind of contextual factors influence the relationship between the teaching career and self-efficacy.

Longer terms of teaching experience predicted teachers' negative attitudes in accepting students with disabilities into mainstream classes ('Attitudes') only in the Finnish sample. This finding further supports previous studies indicating that teachers with less teaching experience held more positive attitudes towards inclusive education than teachers with more experience (Glaubman & Lifshitz, 2001; Jahnukainen & Korhonen, 2003; Author et al., 2012). There are several likely explanations for this result. First, because inclusive education was introduced only recently into teacher education programmes in many countries, younger teachers could be more knowledgeable about inclusion. Thus, they may be more willing to accept the idea, whereas more experienced teachers may feel insufficiently trained in inclusive education. Another possible explanation is that the teachers who have a great deal of

experience may think their skills or knowledge is too 'stale' to teach students with SEN (de Boer et al., 2011), and they have not received enough in-service training for their professional development. Furthermore, it is probable that teachers with longer teaching career have less positive or successful experiences associated with teaching students with SEN in their classrooms. The literature suggests that teaching career and experience in teaching students with SEN seem to be inconsistent with each other (de Boer et al., 2011). It may be because inclusive education was adopted in recent years and students with SEN were educated separately in special schools or special classes before, thus the older teachers were likely to have few opportunities to teach students with SEN in spite of their long teaching career.

Finally, another interesting difference between Japan and Finland is that the 'Amount of inclusive education training' was positively linked with the Finnish teachers' higher general teacher self-efficacy, higher acceptance of students with disabilities in mainstream classes ('Attitudes'), and fewer concerns regarding including students with disabilities in their own classrooms ('Concerns'). In contrast, these relationships were not found among the Japanese teachers. In addition, self-efficacy mediated the effect of amount of inclusive training to all three types of attitudes only in Finland. Thus, it seems that inclusive education training helps to improve teachers' self-efficacy and attitudes towards inclusive education directly and indirectly in Finland but not in Japan. We can assume that even if different types of teachers are educated separately, with classroom teachers and subject teachers not fully trained in inclusive education, Finnish teacher training programmes offer enough training to develop their self-efficacy and attitudes. There are several possible explanations for this finding. First, one obvious difference between Japan and Finland in terms of teacher education programmes is the amount of teaching practice provided. For example, primary teacher education requires a minimum of 20 European Credit Transfer System (ECTS) credits of teaching practice, earned over several years, in Finland (Niemi, 2012). One ECTS credit corresponds to 25–30 hours of study, according to the European Commission (2009). In addition to that, many university programmes have much more practice in their curricula. On the other hand, Japanese primary teacher education programmes require only five credits (with one credit equal to about 45 hours of study) of teaching practice (MEXT, n.d.). This teaching practice usually takes about one month and occurs in the final year of the programme. It is possible that Finnish teachers have more opportunities to experience teaching diverse students during their teaching practice sessions. Moreover, even though the educational policies in Japan emphasise inclusive

education, a course regarding inclusive education has become mandatory for all students who want to be teachers only recently (Kato, 2016; MEXT, 2017b), and there was no such course until then (Forlin et al., 2015). In Finland, all teachers have completed at least some courses on inclusive education, and quite a few classroom teachers take special education as a minor subject (25 ECTS credits). Hence, Finnish students in teacher education programmes may receive more pre-service inclusive education training than Japanese students receive. Finally, in general, Japanese in-service teacher training is conducted through lecture-style study, and teachers have seen it as unattractive (Sakakibara et al., 2005). This is consistent with anecdotal evidence from answers to open questions in our Japanese questionnaire. In their responses, many teachers stated that they wanted to obtain more pragmatic in-service training, including observation, case study, and teaching practice with students with SEN. Conversely, Finnish teachers may readily obtain in-service training that is more practically related to inclusive education. Also, Finnish teachers in general are quite active in attending in-service training to learn about challenges and approaches to meeting SEN in schools. These in-service trainings are supported at a national scale by the Finnish National Agency of Education. Further research should be undertaken to investigate what kinds of differences exist in inclusive education training between the two countries.

## **5. Limitations and future research**

This is the first study of its kind to test measurement invariance that constructs cross-cultural validity of these two scales (SACIE-R and TEIP) by using MGCFA. The results of this study supported partial scalar invariance of the scales across Japan and Finland, which means there is universality in the concepts of attitudes and self-efficacy on implementing inclusive education. Since we included only these two countries, a future study investigating measurement invariance using data from other countries would be very interesting and useful for confirming the cross-cultural validity of the two scales.

The contribution of this study is to show that there is both universality in the structure of attitudes and self-efficacy and also local differences in how contexts relate to them due to the cultural-historical background of the two countries. However, this study was limited by the use of only four teachers' background variables for which further detailed information would be

needed. The 'Amount of inclusive education training' element, for example, included both pre- and in-service training as one variable, although there might be differences between pre- and in-service training in terms of what teachers learn and how it affects self-efficacy. Similarly, the two background variables, 'Interactions with persons with disabilities' and 'Experience in teaching students with disabilities', did not ask about which type of disabilities the persons/students had. Several previous studies have pointed out that teachers' attitudes could change based on the type of students' disabilities (e.g., Avramidis & Norwich, 2002; de Boer et al., 2011; Forlin et al., 2015). Thus, experience with persons/students who have particular types of disabilities is likely associated with teachers' self-efficacy and attitudes in specific ways. This study, therefore, suggests many questions in need of future investigation.

Additional indicators concerning teachers' background variables that are not included in our study might also influence teachers' attitudes and self-efficacy. For instance, according to Bandura (1997), self-efficacy originates from four main sources: (a) mastery experience; (b) vicarious experience; (c) social persuasion by others; and (d) somatic and emotional states. Those sources might place different emphasis on self-efficacy in different countries. For instance, the self-oriented sources (mastery experience and somatic and emotional states) could work strongly in an individualist society, while the other-oriented sources (vicarious experience and social persuasion) may be more important in a collectivist society (Klassen, 2004). Moreover, one obvious difference between Japan and Finland is that municipalities assign at least one special education teacher to every school in Finland (Author et al., 2017), whereas the same does not occur in Japan. Thus, Finnish teachers could easily obtain daily vicarious experience, including observation through co-teaching and professional support teaching, discussions with teachers who specialise in teaching students with SEN, and getting direct feedback and positive social persuasion from colleagues (Author et al., 2017). It would be interesting to assess the effects of those sources on teachers' self-efficacy and attitudes in the two countries.

Last but not least, the generalisability of these results is subject to certain limitations. One source of weakness in this study which could have affected the measurements was about four years difference in the time points of collecting the data between Japan and Finland. There have been worldwide changes in the area of inclusive education due to the Convention on the Rights of Persons with Disabilities (United Nations, 2006), the time distance might

have implications for the comparability of the two samples. Likewise, although the sample size was quite large in this study, the cross-sectional data were obtained by using convenience sampling from certain areas of each country. More research using random sampling and longitudinal data could provide higher generalisability and useful insight into how teachers' self-efficacy and attitudes develop over time. In addition, further qualitative research including interviews with teachers, students, and parents, as well as observations of classrooms and inclusive education training settings, may lead into a deeper understanding of teachers' attitudes and self-efficacy on implementing inclusive education.

## **6. Practical implications and conclusion**

The findings of this study have a number of important implications for future practice. First, this research provides evidence of universal applicability of the two scales for the purpose of assessing teachers' attitudes and self-efficacy concerning inclusive education. Since measuring educational development continuously is essential to evaluate whether new policies and systems are working well in practice, these measures can be one option for not only researchers but also administrators to monitor the development. Second, the current study has shown that the experience of teaching students with disabilities influences teachers' self-efficacy and attitudes positively in both countries. Thus, it will be beneficial to include more practice teaching students with SEN in both pre- and in-service teacher training while developing knowledge and skills connected with inclusive education. Finally, we have shown that there are direct and indirect effects of inclusive education training on attitudes and self-efficacy in Finland. Thus, it could be worthwhile to investigate what kind of inclusive education training Finland employs and how it works and to reinforce the aspects that might positively influence teachers' attitudes towards inclusive education. Furthermore, although inclusive education training has a positive effect on self-efficacy and attitudes in Finland, some teachers might not receive sufficient in-service training on inclusive education during their teaching career. Therefore, it would be profitable to promote professional development programmes on inclusive education that are customised to fit teachers' needs at a specific career stage (Klassen & Chiu, 2010). Conversely, inclusive education training itself does not have any influence in the Japanese data. Thus, it could be argued that the inclusive education

training used in Japan should be improved. In the light of this study, a promising composition in Japan would be that teachers gain more experience in teaching students with SEN and/or have more interactions with persons with disabilities to improve their self-efficacy not through the training, but during their teaching career. The importance of having stronger self-efficacy when beginning to work as a teacher is highlighted by the fact that an increasing percentage of teachers quit their jobs after the first year of work in Japan (Waida & Kameyama, 2011). While this high turnover may not be directly related to development in inclusive education, the essential implication of our findings is that inclusive education training should be reinforced in teacher education programmes. Doing so could allow future teachers to increase their self-efficacy and attitudes before beginning their demanding work. Our conclusion is also supported by Forlin et al. (2015).

The present study provides additional evidence for cross-cultural validity of the two scales, TEIP and SACIE-R. This validity is a requirement for meaningful comparative studies across different countries. The results of cross-cultural analysis showed interesting similarities and differences between Japan and Finland that will contribute to efforts to improve inclusive education in both countries. One of the key findings in this study is that social contact and teaching experience with persons or students with disabilities linked positively to teachers' self-efficacy and attitudes in both countries. It is likely that this phenomenon could be universal, not only across countries but also across teachers and students. In other words, although the present study relates to teachers' attitudes and self-efficacy towards inclusive education, having social contact with students with disabilities might be also beneficial for typically developing students (Hung & Paul, 2006). Improving teachers' self-efficacy and attitudes on implementing inclusive education is likely to promote inclusive classrooms where students can get know each other, which may positively affect their attitudes towards persons with disabilities. If the children who bear the next generation have positive attitudes towards inclusion, they may lead us into a more inclusive society in the future.

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Table 1. Participants' demographic background information

	Japan	Finland
Gender	Female 53.5%	Female 73.9%
	Male 43.7%	Male 20.4%
Age (Mean, SD)	42.41 (11.82)	44.46 (9.07)
Teaching career in years (Mean, SD)	18.42 (11.92)	16.98 (9.41)
School type (Grade)	Primary school (1-6) 52.6%	Primary school (1-6) 53.8%
	Lower secondary school (7-9) 21.4%	Lower secondary school (7-9) 23.3%
	Combined primary and lower secondary school (1-9) 0.3%	Comprehensive school (1-9) 20.3%
	Combined lower and upper secondary school (7-12) 2.2%	
	Upper secondary school (10-12) 15.3%	
Experience in teaching students with disabilities	Very low 17.0%	Very low 6.9%
	Low 28.1%	Low 28.4%
	Average 33.1%	Average 33.0%
	High 12.8%	High 17.2%
	Very high 0.8%	Very high 10.3%
Experience of interactions with persons with disabilities	No 46.0%	No 44.8%
	Yes 45.7%	Yes 51.8%
Amount of inclusive education training	None 17.0%	None 36.2%
	Little 21.7%	Little 26.3%

Some 32.3%

Some 22.7%

A lot 15.6%

A lot 8.0%

Very high level 5.0%

Very high level 3.9%

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Table 2. Test of measurement invariance for the multi-group measurement model

Model	Explanation	Fit Indices				Nested model comparison using noncentral $\chi^2$					
		$\chi^2$	<i>df</i>	RMSEA	SRMR	$\delta^*$	$\lambda$	$\Delta\chi^2$	$\Delta df$	<i>p</i>	Model comparison
1	No constrains	2177.963	824	0.052	0.061	—	—	—	—	—	—
2	Equal factor loadings	2290.049	849	0.053	0.071	0.628	772.366	107.499	25	<i>p</i> >.99	2 vs. 1
3	Equal intercepts and factor loadings	3276.493	874	0.067	0.093	0.644	792.661	1025.745	25	<i>p</i> <.001	3 vs. 2
4	Equal intercepts and factor loadings. Freeing intercepts of SACIE-R 1, 3, 5, 11 and TEIP 1, 5, 13, 17, 18	2461.709	865	0.055	0.073	0.614	755.422	174.054	16	<i>p</i> >.99	4 vs. 2
5	Add second-order factor with no constrains	2508.221	877	0.055	0.075	0.611	751.860	47.509	12	<i>p</i> >.99	5 vs. 4
6	Equal factor loadings of second-order factor	2539.325	882	0.056	0.079	0.596	732.637	29.922	5	<i>p</i> >.99	6 vs. 5
7	Add four background variables	3182.705	1122	0.058	0.082	—	—	—	—	—	—

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8	Add some regressions and covariates based on modification indices	3143.806	1112	0.055	0.075	—	—	—	—	—	—
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Note. RMSEA = Root Mean Square Error of Approximation; SRMR = Standardised Root Mean Square Residual. Test of nested model comparison using noncentral chi-square distribution was based on MacCallum et al. (2006). The purpose of this test is to test a small difference in fit, that is, to examine a null hypothesis of the form  $H_0: (F_A - F_B) \leq \delta^*$ , where  $F^*$  is population discrepancy function values. The idea is that to predetermine acceptable value of RMSEA between the two nested models and to calculate the critical value using noncentral chi-square reference distribution. By using following procedure, one can determine critical value and whether the sample value of the test statistic is sufficiently large to reject the null hypothesis  $H_0$ . The procedure is: (a) Specify values of RMSEA for the non/less constraint model ( $\epsilon_A$ ) and the more constraint model ( $\epsilon_B$ ) ( $\epsilon_A = .052$  and  $\epsilon_B = .058$  in the present study) so as to represent a small difference in fit between the models; (b) Calculate  $\delta^* = df_A \times \epsilon_A^2 - df_B \times \epsilon_B^2$ ; (c) Calculate noncentrality parameter  $\lambda = (N-1) \times \delta^*$ ; and (d) The decision on whether reject the null hypothesis  $H_0$  at the  $\alpha$  level is calculated by  $\alpha = 1 - G(\chi^2; df_A - df_B, \lambda)$ , where the  $G(\chi^2; df_A - df_B, \lambda)$  is the cumulative distribution function of a noncentral chi-square reference distribution. MacCallum et al. (2006) provided SAS code for performing the necessary computation in their article.

Table 3. Regressions of the factors on the background variables and the results of difference testing

Path of regression	Japanese	Finnish	Diff (Jap-Fin)
Training → Attitudes	-.008 (-.019)	.108*** (.275)	-.116**
Training → Concerns	.001 (.007)	.048*** (.261)	-.047**
Training → GTSE	.017 (.033)	.098*** (.219)	-.080*
Interactions → Sentiments	.204*** (.219)	.124*** (.168)	.080
Interactions → GTSE	.202** (.171)	.039 (.039)	.162*
Career → GTSE	.008** (.161)	.001 (.019)	.007*
Career → Attitudes	.000 (.001)	-.006** (-.135)	.006*
Teaching SD → GTSE	.219*** (.361)	.149*** (.324)	.070
Teaching SD → Concerns	.040** (.273)	.060*** (.322)	-.020

Note. Training = Amount of inclusive education training; Interactions = Experience of interactions with persons with disabilities; Career = Teaching career; Teaching SD = Experience in teaching students with disabilities; GTSE = General teacher self-efficacy for inclusive practices.

The non-standardised path estimates are reported, and the standardised path estimates are reported in brackets.

\*  $p < .05$ ., \*\*  $p < .01$ ., \*\*\*  $p < .001$ .

Table 4. Summary of indirect effects via 'General teacher self-efficacy for inclusive practices'

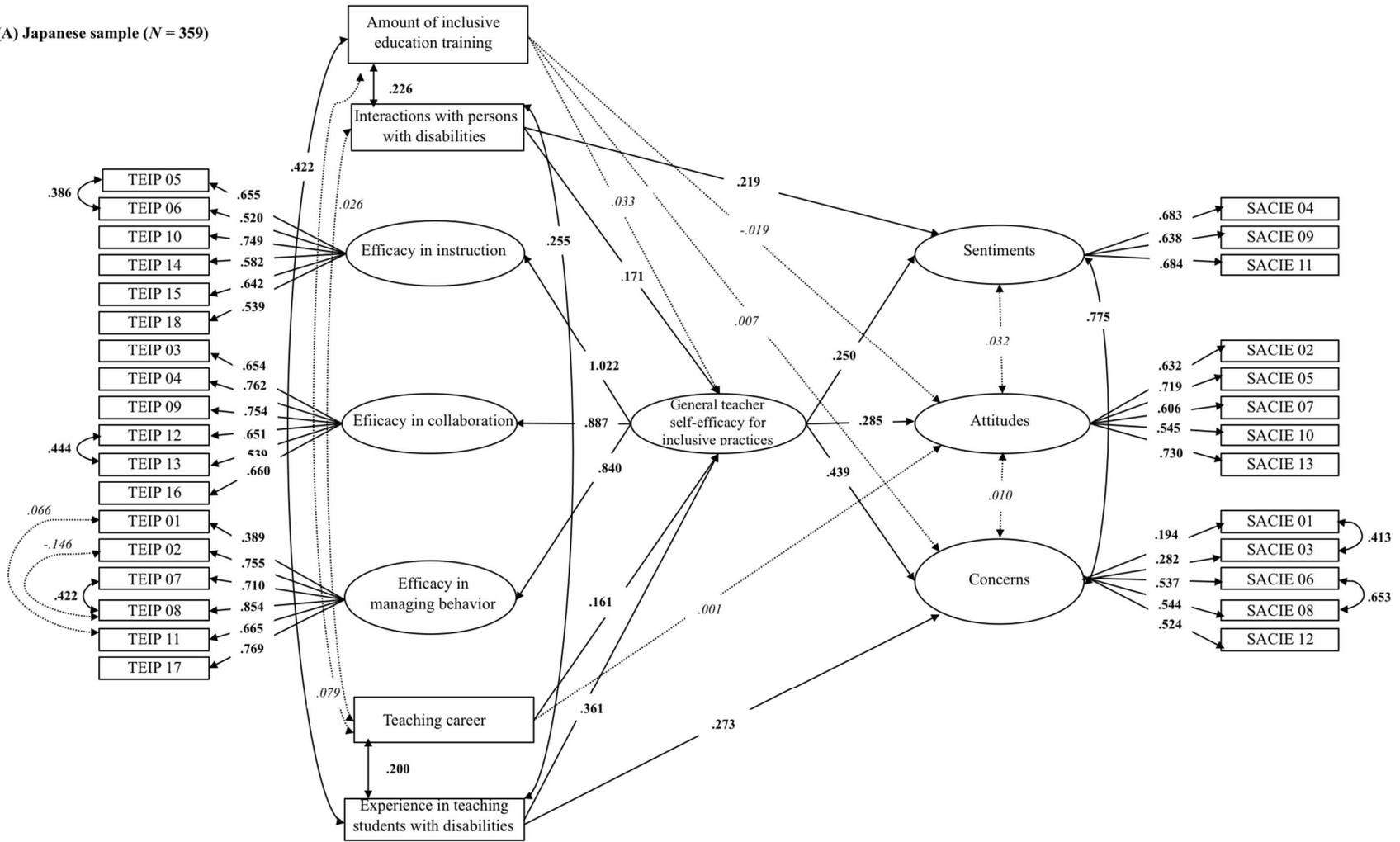
	Sentiments	Attitudes	Concerns
Japanese sample			
Training	.008	.009	.015
Interactions	.043**	.049**	.075**
Career	.040**	.046**	.071**
Teaching SD	.090***	.103***	.158***
Finnish sample			
Training	.059***	.058***	.058***
Interactions	.011	.010	.010
Career	.005	.005	.005
Teaching SD	.087***	.086***	.085***

Note. Training = Amount of inclusive education training; Interactions = Experience of interactions with persons with disabilities; Career = Teaching career; Teaching SD = Experience in teaching students with disabilities.

The standardised path estimates are reported.

\*  $p < .05$ ., \*\*  $p < .01$ ., \*\*\*  $p < .001$ .

(A) Japanese sample (N = 359)



(B) Finnish sample (N = 872)

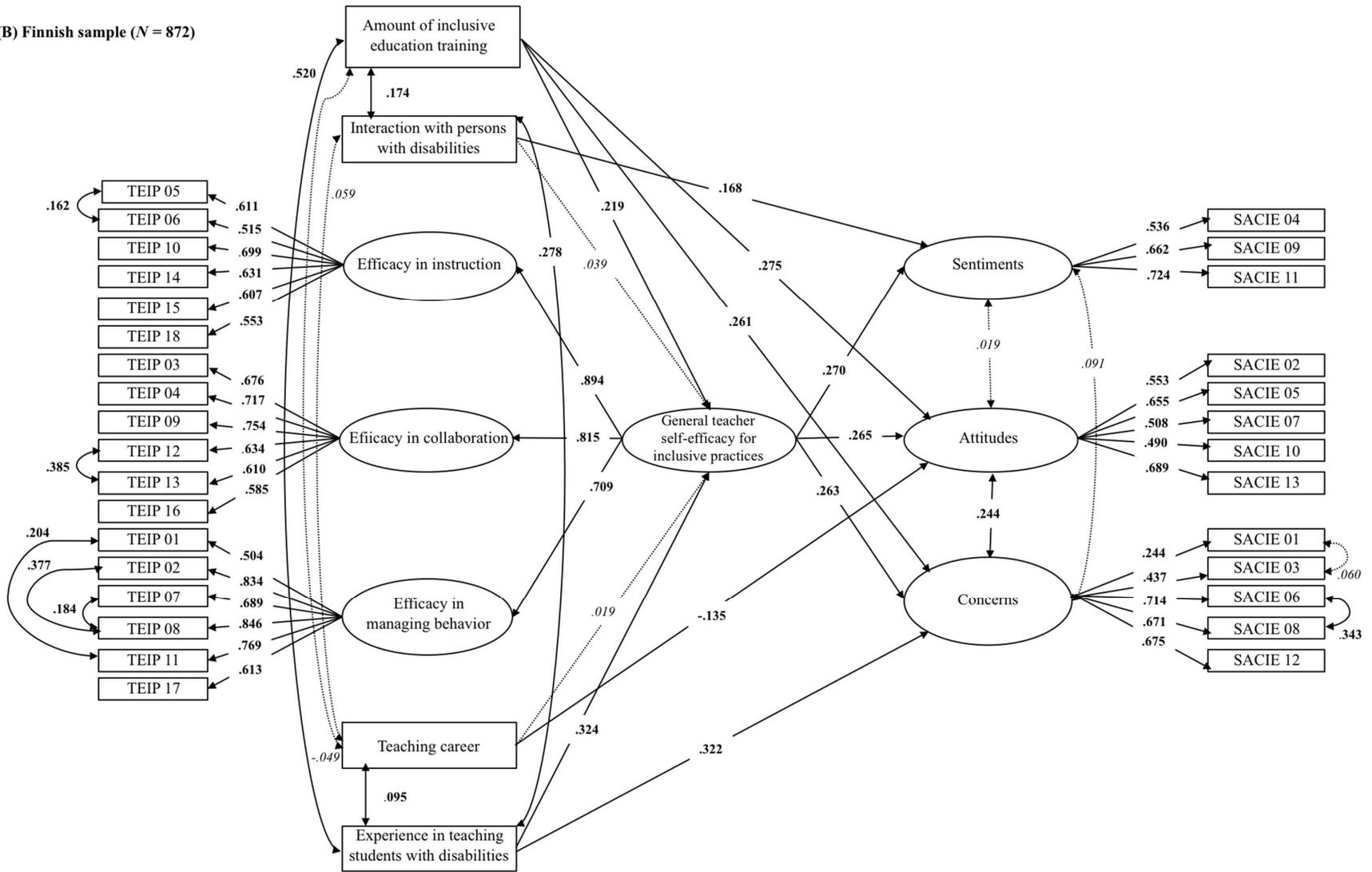


Figure 1. Final predictive models in Japan (Panel A) and in Finland (Panel B).

Note. Standardized path estimates are reported. The estimate numbers that were significant are shown in bold and not significant are in *italic*.