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# The Relationship Among Teachers' Characteristics, Self-Efficacy and Attitudes towards Inclusive Education Among Chinese Preschool Teachers

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## ABSTRACT

The purpose of this study was to investigate the relationships among Chinese in-service preschool teachers' characteristics, teachers' self-efficacy for inclusive education, and teachers' attitudes towards inclusion. A total of 736 in-service preschool teachers from seven provinces and a municipality (i.e. Beijing City) of China participated. The results of structural equation modelling provided evidence that teachers' interactions with people with disabilities, in-service training and self-efficacy predicted preschool teachers' attitudes directly. Additionally, in-service training and knowledge of local policy of inclusive education predicted preschool teachers' attitudes towards inclusion via the moderation of self-efficacy. Implications for research and practice are discussed.

## ARTICLE HISTORY

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## KEYWORDS

Inclusive education;  
preschool teacher; teacher  
characteristics; self-efficacy;  
attitudes

## Introduction

Inclusive education has become a global effort to ensure the right to education for all children regardless of their abilities (e.g. IDEA, 20 U.S.C. § 1400, 2004; UNESCO, 2005). Teachers, as the direct agents who deliver inclusive instructions, play an imperative role in advancing the movement for inclusion. A growing body of literature has suggested that teachers' attitudes and self-efficacy towards inclusion could influence their competence in implementing inclusive education practices. Nevertheless, the majority of previous studies focused on teacher attitudes and self-efficacy towards inclusion of schools age students. Given the evidence that high-quality inclusive environments were associated with positive outcomes for all young children, including children with disabilities (Barton & Smith, 2015), more attention is needed for investigations on teacher attitudes and self-efficacy towards early inclusive education. Global-wise, limited research has explored in-service preschool teachers' self-efficacy and attitudes towards inclusion. Such research is even scarcer in China where inclusive education at the preschool level has not received enough attention from the government and the demand for enrolling young children with disabilities in general education exceeds the supply. Specifically, among the 49.47%

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of school age students with disabilities who have access to general education, only 15.9% of the first grade students with disability have received preschool education (MEPRC, 2020a). The aim of this study was to investigate the relationships among in-service preschool teachers' characteristics, self-efficacy and attitudes towards inclusion education. Those specific teacher characteristics under examination include teachers' pre-service and in-service training experiences, knowledge of local policy of inclusive education, experience interacting with people with disabilities, and experience teaching students with disabilities. The findings can provide a deeper explanation of the mechanisms of preschool teachers' attitudes towards including children with disabilities in their classrooms. Additionally, it can inform the design of teacher training programs in China to prepare confident and competent preschool teachers to implement early childhood inclusive education. For example, the result in this study that knowledge of local policy of inclusive education can indirectly predict positive attitudes informs us that the policies relative to inclusive education should be incorporated into the preschool teachers' training programs.

## Literature Review

### *Teachers' Attitudes towards Inclusive Education*

Teachers' attitude towards inclusive education is considered as an important factor influencing the success of inclusive education (e.g. European Agency for Development in Special Needs Education, 2009; Smith et al., 2015). The results of a national survey conducted in the United States revealed that teachers' beliefs and attitudes were identified as the highest-rated inhibitor to preschool inclusion (Barton & Smith, 2015). In its *Guidelines for Inclusion: Ensuring Access to Education for All*, UNESCO (2005) urged that overcoming negative attitudes and values about inclusion was one of the key steps in promoting inclusive education.

Although researchers from different theoretical orientations have defined attitudes in various ways (O. Malinen, 2013), Eagly and Chaiken (1998, p. 269) provided a simple and intuitive definition of attitude – 'a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor'. The theory of planned behaviour (Ajzen & Fishbein, 1980) further addressed the role of attitudes in predicting behaviours. That is, a more favourable attitude is associated with a stronger intention to perform the behaviour; thus, the examination of an individual's attitudes can provide insights into understanding their behaviours (Ajzen, 2011). In the context of inclusive education, positive attitude towards inclusion was considered as a foundation of teachers' behaviour adjustments to support children with disabilities.

Preschool teachers' attitudes towards inclusive education differ across settings (Avramidis & Norwich, 2002). Some studies indicated that preschool teachers hold negative attitude (Ramli & Binti, 2017), while other studies suggested moderate (e.g. Lee et al., 2015) or positive teacher attitudes (e.g. Sunko & Kaselj, 2020) towards preschool inclusion. Studies conducted in Mainland China found similarly mixed results. For example, Zheng (2017) reported that preschool teachers recognised the value of inclusive education and believed that children with typically developed would benefit more from inclusion. However, the study of Yan et al. (2017) showed that preschool teachers hold negative

attitudes towards including children with disabilities in regular classrooms. Teachers' contradictory attitudes towards inclusion may be influenced by teachers' background factors and environmental factors (Avramidis & Norwich, 2002).

### ***Teachers' Characteristics and Attitudes towards Inclusive Education***

According to the theory of attitude formation, persuasion (Albarracín & Vargas, 2010), direct experience (O. Malinen, 2013) and cognitive information (Ajzen, 2012) are key factors to change people's attitudes. In the context of inclusive education, the knowledge of policies of inclusion becomes strong persuasion messages intended to affect people's attitudes towards inclusion (O. Malinen, 2013) and the experience of interacting and educating students with disabilities promotes teachers' positive attitudes towards inclusion (Lee et al., 2015; U. Sharma & Nuttal, 2016). Moreover, the knowledge and skills provided by teacher training programs become important information source that helps teachers form a positive attitude towards inclusion (Lee et al., 2015; Parey, 2019). Therefore, the current study would explore the effect of including pre-service training, in-service training, knowledge of local policy about inclusion, interactive experience and teaching experience with children with disabilities on preschool teachers' attitude towards inclusion.

Large amount of studies have shown that the teacher characteristics mentioned above can influence teachers' attitudes towards inclusion. First, in-service and pre-service training in special education are often considered to have a positive effect on teachers' attitudes (Lee et al., 2015; Parey, 2019). Teachers who have more positive attitudes towards children with disabilities generally had received more training in inclusive education (Forlin et al., 2009). Earlier studies indicated that teachers' attitudes towards inclusion improved significantly after the completion of special education training (Forlin et al., 2009; Rakap et al., 2017). Second, knowledge of local policy of inclusive education can positively predict teachers' attitudes towards inclusion (Zhao et al., 2022). Some research suggested that knowledge of policies and acts about inclusion should be included into teacher training programs (U. Sharma et al., 2015). Third, the experience of interacting people with disabilities promoted more positive attitudes towards inclusion (Ramli, 2017; T. Sharma et al., 2007). Subban and Sharma (2006) found that contact with a person with a disability can improve teachers' confidence to include children with disabilities in their own classrooms. Fourth, experience in teaching students with disabilities is important to promote teachers' positive attitudes about inclusion (Lee et al., 2015; U. Sharma & Nuttal, 2016). For example, the study of Weber and Greiner (2019) showed that pre-service teachers' attitudes were significantly improved after their first teaching experiences with students with disabilities.

### ***Teachers' Self-Efficacy and Attitudes towards Inclusive Education***

Teachers' sense of self-efficacy has proved to be a powerful construct, related to teachers' motivation and behaviour in the classroom as well as contributing to important student outcomes (Ross, 1998; Tschannen-Moran et al., 1998). Armor et al. (1976) first operationalised teachers' sense of self-efficacy as the extent to which teachers believed they could control student motivation and performance and whether teachers believed

environmental factors overwhelmed any power they could exert in schools. Grounded in the social cognitive theory, Bandura (1977) introduced the concept of self-efficacy beliefs as an assessment of one's capabilities to attain the desired level of performance in a given endeavour. In the context of inclusive education, researchers (U. Sharma et al., 2012) have operationalised teachers' self-efficacy for inclusion by three dimensions. That is teachers' self-evaluation of their capabilities in modifying the instruction according to students' individual characteristics, preventing and controlling disruptive student behaviour, and collaborating with parents and colleagues in a way that promotes learning of all students (U. Sharma et al., 2012).

A growing body of research has examined teacher self-efficacy for inclusive education. These research showed that teachers' self-efficacy had a significant impact on teachers' effective strategies in educating students with disabilities and addressing students' problems in general education classrooms (Miesera et al., 2019; U. Sharma et al., 2018). Previous studies showed that teachers' self-efficacy status varies in different countries (Loreman et al., 2013; Song, 2016). For Chinese teachers' self-efficacy towards inclusive education, a recent study found that preschool teachers in China have an intermediate level of self-efficacy towards inclusion, their efficacy in cooperation is highest, while their efficacy in inclusive instruction and managing behaviour is relatively low (Zhao & Peng, 2021).

As for the relationship between self-efficacy and attitudes, Bandura's social cognitive theory suggested that self-efficacy has significant positive predictive effect on people's attitude (Bandura, 1997). The research in the field of inclusive education in different countries provided evidence for the relationship between self-efficacy and attitudes. Particularly, researchers found that self-efficacy was an important factor affecting teachers' attitudes towards inclusive education (Miesera et al., 2019; Yada et al., 2018). Specifically, teachers' overall self-efficacy could directly predict teachers' attitudes towards inclusive education (Schaefer, 2010; Sokal & Sharma, 2014). In terms of the predictive effect of sub-dimensions of teachers' self-efficacy on teachers' attitudes towards inclusive education, most research found that efficacy in collaboration had the strongest relationship with teachers' attitudes even after controlled teachers' background variables (O. P. Malinen et al., 2012; Savolainen et al., 2012). However, as for the effect of efficacy in managing problematic behaviour and efficacy in instruction on attitude, the available findings were not consistent. Some research found efficacy in managing problematic behaviour predicted teachers' attitudes towards inclusion in Finland and in Japan samples (Savolainen et al., 2012; Yada & Savolainen, 2017). However, in China, efficacy in inclusive instruction and efficacy in managing behaviour did not have a significant relationship with teachers' attitudes (O. P. Malinen et al., 2012).

### ***Teachers' Characteristics, Self-Efficacy and Attitudes towards Inclusive Education***

The cognitive dissonance theory holds that people experience cognitive dissonance when new situations and new information are inconsistent with people's original perceptions. In order to address cognitive dissonance, people would change their perception to align it with the new perception or add new cognitive elements to reduce dissonance (Festinger, 1957). In the inclusive education practice, preschool teachers, especially in China, who used to teach normally developing children and

are now required to include children with disabilities in their classes, will develop cognitive dissonance. According to the theory of cognitive dissonance, we hypothesize that the important sources of attitude change, including the publicity of laws and regulations, the provision of teacher training, the participation in teaching practice, will affect teachers' attitude towards inclusion directly or will influence teachers' attitude by increasing their new cognition, that is, changing their self-efficacy in implementing inclusive education. Therefore, in addition to the direct predicting links among teachers' characteristics, teachers' self-efficacy and attitudes towards inclusion, we further argue that teachers' characteristics might influence teachers' attitudes towards inclusion via teachers' self-efficacy indirectly. Teachers' characteristics in this study include pre-service training, in-service training, knowledge of local policy about inclusion, interactive experience and educating experience with children with disabilities on preschool teachers' self-efficacy and self-efficacy towards inclusion. These five variables are important factors to change people's attitude towards inclusion and crucial aspects of teacher preparation to implement inclusive education practice. Exploring the indirect effects of teachers' characteristics on attitudes can better explore the formation mechanism of teachers' attitude towards inclusive education and can explain why teachers in different contexts have different attitudes towards inclusive education. The research results can help policymakers to take measures to improve teachers' attitudes towards including children with disabilities.

Limited research has explored the indirect relationship between teachers' characteristics and self-efficacy and attitudes towards inclusion. Yada et al. (2018) found that interactions with persons with disabilities and experience in teaching students with disabilities had positive indirect association with their attitudes via self-efficacy. Therefore, the experience of contact or teaching with people with disabilities can improve teachers' self-efficacy and thus improve teachers' attitude towards inclusive education. For the influence of teacher training on teachers' attitudes towards inclusion, the research holds that inclusive education training predicted teachers' attitudes through teachers' self-efficacy indirectly only in Finnish teachers but not in Japanese teachers because of the difference in the training programs quality in these two countries. Those inconsistent results in the current literature needed to be explained within the specific cultural-historical contexts. Therefore, such research in the context of Chinese preschool inclusive education practice can not only provide valuable information for government policymakers and educators to improve the quality of inclusion, but also will enrich the existing international research results on the formation mechanism of preschool teachers' attitude towards inclusive education.

## Research Questions

The current study aimed to bridge the current literature gaps by exploring a model for predicting teachers' attitudes towards inclusive education by using a sample of in-service preschool teachers from seven provinces and a municipality (Beijing City) in mainland China. This study was guided by two research questions.

**Research Question 1:** Can teachers' attitudes towards inclusive education be predicted by their general self-efficacy and three sub-dimensions of self-efficacy directly?

**Research Question 2:** Can teachers' five characteristics (pre-service training, in-service training, knowledge, interactive experience and educating experience) predict teachers' attitudes directly or indirectly via teachers' self-efficacy?

## Method

### Participants

Totally 736 in-service preschool teachers participated in this study. The participants were from seven provinces and a municipality, respectively Inner Mongolia (located in north China, 17.4%), Beijing (located in north China, 28.6%), Qinghai (located in northwest China, 1.3%), Henan (located in central China, 22.5%), Anhui (located in east China, 0.5%), Hubei (located in central China, 5.7%), Fujian (located in south China, 10.6%), and Guangdong (located in south China, 7.0%). The data showed its representativeness through the broad collection process. Table 1 showed the teachers' demographic information including age, the experience of interactions with people with disabilities, years of teaching children with disabilities, the experience of pre-service and in-service inclusive education training, and knowledge of local inclusive education policies. The ethics committee from the university running the project reviewed this research protocol. All teachers participated in the current study provided consent.

### Research Instruments

We used the Chinese version of Teacher Efficacy for Inclusive Practices (TEIP) scale (O. P. Malinen et al., 2012; U. Sharma et al., 2012) to measure preschool teachers' self-

**Table 1.** Demographic information of participants ( $N = 736$ ).

Variables	<i>n</i>	%
Age		
19–29	353	47.8
30–39	240	32.5
40–49	110	14.9
50–60	35	4.7
Interactions with people with disabilities		
With experience	371	50.3
No experience	367	49.7
Years of teaching children with disabilities		
0	463	62.7
<1	91	12.3
1–3	143	19.4
>3	41	5.6
Pre-service IE training		
With experience	257	34.8
No experience	481	65.2
In-service IE training		
With experience	287	38.9
No experience	451	61.1
Knowledge of local IE policies		
None	104	14.1
Poor	346	46.9
Average	258	35
Very Good	30	4.1

IE = inclusive education.

efficacy towards inclusion. The TEIP is an 18-items self-report scale that has three subscales: efficacy to use inclusive instructions (e.g. I can accurately gauge student comprehension of what I have taught), efficacy in collaboration (e.g. I can make parents feel comfortable coming to school), and efficacy in managing behaviour (e.g. I am able to calm a student who is disruptive or noisy). The participants were asked to respond to the question on a 6-point Likert scale (1 = strongly disagree, 6 = strongly agree). High scores showed high levels of self-efficacy. Previous studies demonstrated the Chinese version of TEIP has good reliability and validity (O. P. Malinen et al., 2012). In the current study, the results of the reliability test suggested moderately high omega reliabilities for all three subscales ( $\omega_1 = 0.868$ ,  $\omega_2 = 0.903$ ,  $\omega_3 = 0.910$ ).

The second Scale was the Teachers Attitudes Towards Inclusive Classrooms (STATIC) (Cochran, 1998) which was developed to assess teachers' attitudes towards inclusion. The STATIC has 20 items and six responses ranging from 'strongly disagree' to 'strongly agree'. High scores indicate positive attitudes towards inclusion. The STATIC scale has four subscales: professional issues regarding inclusive education (e.g. I am confident in my ability to teach children with special needs), philosophical issues regarding inclusive education (e.g. Although children differ intellectually, physically, and psychologically, I believe that all children can learn in most environments), logistical concerns of inclusive education (e.g. Adaptive materials and equipment are easily acquired for meeting the needs of students with special needs), advantages and disadvantages of inclusion education (e.g. Student with special needs learn social skills that are modelled by regular education students). The reliability for the STATIC scale was 0.89 in Cochran's report (1998). We conducted confirmatory factor analysis (CFA) and internal reliability test to examine the psychometric properties of the STATIC – Chinese. The first model had unacceptable fit (RMSEA = .10, SRMR = .078). According to the modification indices, several covariates were included into the model, and these additions resulted in an adequate fit (RMSEA = .069, SRMR = .063). The result provided support for the four-dimension structure of the attitude scale and moderate omega reliabilities for subscales ( $\omega_1 = .729$ ,  $\omega_2 = .671$ ,  $\omega_3 = .789$ ,  $\omega_4 = .725$ ).

### **Data Collection**

The data was collected through an online questionnaire. The online questionnaire included three parts, including teachers' background information, teachers' self-efficacy towards inclusion and teachers' attitudes towards inclusion. We delivered the instructions for completing the questionnaire and the survey link to preschool teachers through WeChat (wechat.com), a widely used social communication application in China. We also asked several faculties in universities that have connections with preschool teachers to disseminate the survey link through WeChat. The participants were informed of the purpose of the study, their responses were anonymous, and they could take part in the survey completely voluntarily. A total of 829 in-service preschool teachers responded to the survey. Responses from preschool teachers with obvious false answering tendencies were deleted. The invalid items were excluded because of the inconsistent answer in reversed order items and contradictory answers to forward- and backward-scored items. We finally included 736 valid responses into the data analysis.



## Data Analysis

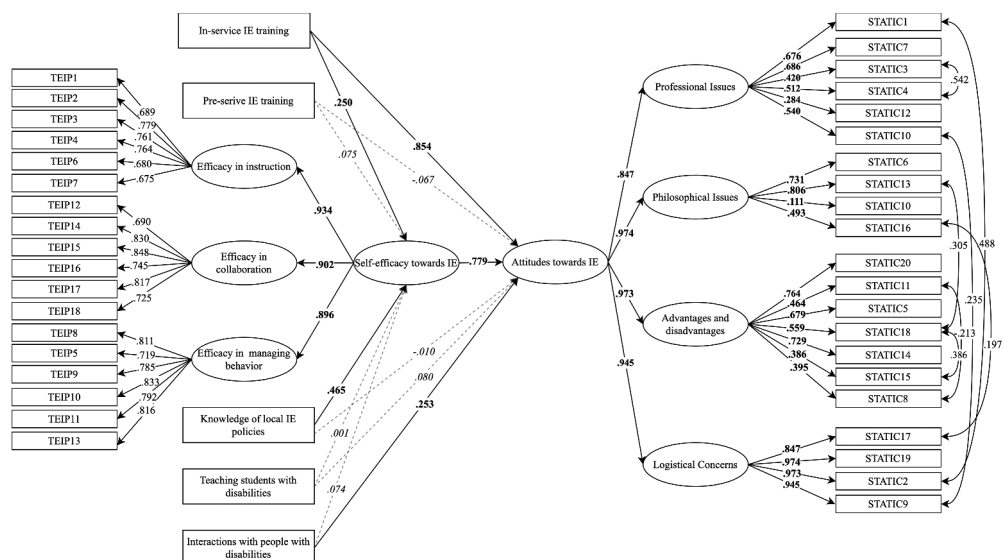
The data analyses involved three phases and were all conducted using R (R Core Team, 2000). First, we employed structural equation modelling (SEM) to examine the predictive relationships between attitudes and self-efficacy. Second, we employed SEM to examine the predictive and moderating relationships among five teacher demographic variables, attitudes, and self-efficacy. Those five teacher variables were chosen based on previous studies.

## Results

### Testing Direct Effects

A hypothetical predictive model comprises of STATIC, TEIP, and five background variables (i.e. interactions with people with disabilities, teaching students with disabilities, pre-service inclusive education training, in-service education training, knowledge of local inclusive education policies) were tested. The model had an acceptable fit (RMSEA=.066, SRMR = .0698). The result of the predictive model was presented in Figure 1.

First, the path from 'general self-efficacy' to 'attitudes' was statistically significant ( $B = .779$ ,  $p < .001$ ), which indicated that teachers who had general self-efficacy for inclusive education had more positive attitudes towards inclusive education. Furthermore, the regressions of the five background variables on the efficacy and attitudes factors were examined. As presented in Table 2, the paths from 'in-service



**Figure 1.** Predictive Models. IE = inclusive education; TEIP = Teacher Efficacy for Inclusive Practices (U. Sharma et al., 2012); STATIC = Scale of Teachers Attitudes Towards Inclusive Classrooms (Cochran, 1998). Standardized path estimates, standard factor loading, and residual covariances are reported. The estimate numbers were significant are shown in bold and not significant are in italic.

**Table 2.** Direct and indirect effects of the background variables on attitudes.

Path of Regression	Estimate
<b>Direct Effect</b>	
Self-efficacy → Attitudes	.779***
Interactions → Self-efficacy	.074
Teaching SD → Self-efficacy	.001
Pre-service training → Self-efficacy	.075
In-service training → Self-efficacy	.250**
Policy Knowledge → Self-efficacy	.465***
Interactions → Attitudes	.253***
Teaching SD → Attitudes	.080
Pre-service training → Attitudes	-.067
In-service training → Attitudes	.854***
Policy Knowledge → Attitudes	-.010
<b>Indirect Effect</b>	
Interactions → Self-efficacy → Attitudes	.058
Teaching SD → Self-efficacy → Attitudes	.001
Pre-service training → Self-efficacy → Attitudes	.059
In-service training → Self-efficacy → Attitudes	.195**
Policy Knowledge → Self-efficacy → Attitudes	.363***

In-service training: in-service inclusive education training; Pre-service training: pre-service inclusive education training; Policy Knowledge: Knowledge of local inclusive education policies; Teaching SD: teaching students with disabilities; Interactions: interactions with people with disabilities; Self-efficacy: self-efficacy towards inclusive education; Attitudes: Attitudes towards inclusive education.

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

training on inclusive education' to both 'attitudes' ( $B = .854$ ,  $p < .001$ ) and 'self-efficacy' ( $B = .250$ ,  $p < .01$ ) were statistically significant. The results indicated that teachers who had training on inclusive education at work had high general self-efficacy and more positive attitudes. In addition, the path from 'knowledge of local inclusive education policy' to 'self-efficacy' ( $B = .465$ ,  $p < .001$ ) and the path from 'interactions with people with disabilities' to 'attitudes' ( $B = .253$ ,  $p < .001$ ) were both statistically significant. The results indicated that teachers who had knowledge about policy of inclusion had higher general self-efficacy and teachers who had experience interacting with people with disabilities had more positive attitudes.

### Testing Indirect Effect

The indirect effects of five background variables on attitudes were tested. As presented in Table 2, the indirect paths from 'knowledge of local inclusive education policies' to 'attitudes' via 'general self-efficacy' were statistically significant. These results led to the conclusion that 'general self-efficacy' serves as a mediator between teachers' knowledge of local inclusive education policies and teachers' attitudes towards inclusive education.

Finally, all indirect paths (i.e. association) from the three subfactors of teacher self-efficacy to 'attitudes' were statistically significant: self-efficacy in instruction to attitudes ( $B = 1.875$ ,  $p < .001$ ), self-efficacy in collaboration to attitudes ( $B = 1.497$ ,  $p < .001$ ), self-efficacy in managing behaviour to attitudes ( $B = 1.438$ ,  $p < .001$ ). This result suggested that self-efficacy in instruction, collaboration, and managing behaviour all have statistically significant positive associations with the general attitudes of teachers.

## Discussion

In the below section, we discuss to what extent the results of the data analyses address the guiding research questions on: the predictive relationship between preschool teachers' self-efficacy and attitudes towards inclusive education; the relationship among preschool teachers' characteristics, self-efficacy, and attitudes towards inclusion with the emphasis to understand the mediating role of self-efficacy.

The results of SEM indicate the predictive relation between general self-efficacy and attitudes. Particularly, all three sub-dimensions of self-efficacy had statistically strong associations with attitudes. These findings suggest that teachers' positive attitudes towards inclusive education may be predicted by their high level of self-efficacy in either one of three aspects of self-efficacy for providing effective inclusive education: providing effective inclusive instruction, collaborating with others in inclusive teaching, and managing problem behaviours. Regarding the predictive function of those three dimensions of self-efficacy for inclusive education in Chinese teachers, previous research has only found the strong association between teachers' self-efficacy of collaboration and attitudes (O. P. Malinen et al., 2012). This study expands the literature by providing new evidence on the predictive relations between sub-dimensions of self-efficacy and attitudes, which further strengthens the theoretical construct of self-efficacy (O. P. Malinen et al., 2012) and its relationship with teachers' attitudes and behaviours. One explanation for the different conclusions between the current study and O. P. Malinen et al. (2012) for Chinese teachers might be that the respondents in Malinen and colleagues' study (2012) were pre-service teachers, while our respondents were in-service teachers who had more experience in instructions and challenging behaviour management.

The results in the current study indicated that in-service training on inclusive education predicted preschool teachers' positive attitudes towards inclusive education directly and predicted their attitudes indirectly via self-efficacy. The results are consistent with previous studies showing that inclusive education training predicted teachers' attitudes directly and indirectly in Finland primary and secondary school teachers (Yada et al., 2018). In-service training in inclusive education could increase teachers' knowledge about children with disabilities and help them obtain evidence-based strategies, which could increase their teaching self-efficacy and more positive attitudes towards inclusion (Latouche & Gascoigne, 2019; Sari, 2010). So it is critical to provide adequate support for preschool teachers through in-service teacher training and professional development (Schaefer, 2010).

Another important finding in this study was that knowledge of local inclusive education policy predicted preschool teachers' self-efficacy directly and predicted teachers' attitudes towards inclusion indirectly. The relationship between knowledge of local inclusion policy and teachers' self-efficacy in this study was consistent with those of other countries or regions, such as Canada, Pakistan, Australia, Indonesia, Hong Kong, in which teachers with more knowledge of inclusion policy reported a higher level of general efficacy and a higher level of efficacy in collaboration, inclusive instruction and managing behaviour (Chao et al., 2016; Loreman et al., 2013; U. Sharma & Sokal, 2015). For the indirect relationship between knowledge of local inclusion policy and teachers' attitudes towards inclusion, it implied that knowing local policy of inclusion was not

enough to directly increase preschool teachers' positive attitudes towards inclusive education but to influence teachers' attitudes by improving teachers' self-efficacy.

Regarding teachers' experience in interaction with people with disabilities, the results indicate that such interaction only predicts positive attitudes but does not predict high level of general self-efficacy. Additionally, the predictive function between interaction and attitudes is not mediated by self-efficacy. In another word, teachers who had experience interacting with people with disabilities might have more favourable attitudes towards inclusive education regardless of whether they have a high level of self-efficacy. This conclusion is consistent with previous studies (e.g. Forlin et al., 2009) and suggests that personal experience with persons with disabilities might play a powerful role to alter a person's attitudes thus behaviours towards inclusion.

Regarding teachers' experience in teaching students with disabilities, the results indicate that such professional experience has no predictive function with teachers' attitudes. This result is inconsistent with previous research (O. P. Malinen et al., 2012) in which the researchers found that teaching students with disabilities were suggested as a significant factor to Beijing in-service teachers' attitudes and self-efficacy. One explanation might be the different level of experiences in teaching students with disabilities reported by teachers in this study and Malinen and colleagues' investigation (2012). Research indicated that only successful experience in teaching students with disabilities (e.g. receiving sufficient support; having adequate exposure to students with different types of disabilities) had a positive impact on attitudes (Emam & Mohamed, 2011). In Malenin and colleagues' (2012) study, the participating teachers served compulsory education in which more resources (e.g. itinerant special education service, intersectional collaboration) have been allocated to support teachers' practices of inclusive education, whereas in current study teachers working preschools normally did not such supports for teaching students with disabilities because the Chinese government's support for inclusion is mainly on compulsory education (Gao & Guo, 2020). Thus, it was reasonable that no significant effect of teaching experience with students with disabilities was found without controlling the level and quality of such experiences.

One interesting result of this study was that pre-service training did not have statistically significant effects on teachers' attitudes. This result was consistent with the findings in Chinese and Japanese in-service samples (Song, 2016; Wei & Yuan, 2000). However, research in in-service teachers from Finland found positive relationship between inclusive education courses and teachers' attitudes towards inclusion (Yada et al., 2018). Existing studies have demonstrated that the relationship between preservice training and teachers' attitudes in different countries are related to the duration and types of pre-service training that teachers have received (Emam & Mohamed, 2011; Yoon et al., 2007). For example, shorter teacher training programs that were less than 30 hours were not enough to have a significant impact on personal learning (Yoon et al., 2007). In China, most preschool education majors do not provide inclusive education-related courses for preschool teacher candidates, or only a small amount of knowledge related to children with disabilities is scattered in some chapters of preschool curriculums may explain why the pre-service teacher training courses in China was not enough to make positive changes of preschool teachers' attitudes towards inclusion (Feng et al., 2016; Li, 2017; Wang et al., 2015). Another reason why pre-service teacher training did not show significant effects may be that at least 50% of responders aged over 30 and they have graduated for quite

some time, thus reducing the effects of pre-service teachers' training on their attitudes towards inclusion.

### ***Implications and Limitations***

The current study includes a number of implications for policy makers and teacher education providers. First, the results of this study have shown that in-service training on inclusive education had a positive effect on teachers' self-efficacy and their attitudes towards inclusive education. Thus, the government and the preschools should provide continuous in-service training opportunities on inclusion for preschool teachers. As for the training content, according to the findings that preschool teachers who have more confidence in collaboration, inclusive teaching and managing behaviour problems would show more positive attitudes towards inclusive education. Thus, more cooperative learning activities should be carried out during in-service training to increase preschool teachers' positive experience of collaboration with others (O. Malinen, 2013). Moreover, the knowledge and skills about how to teach children with disabilities and how to cope with children's behaviour problems in preschool classrooms should also be included into the in-service training in order to improve teachers' self-efficacy about inclusive practice, then change their attitudes towards inclusion positively.

Second, the current study demonstrated that increased knowledge of local policy about inclusion would predict preschool teachers' positive attitudes via self-efficacy. However, 61% of preschool teachers in this study had little or no knowledge of local inclusive education policy, indicating that most of the preschool teachers in China lacked an understanding of local inclusion policy. Thus, the policymakers and inclusion practitioners should strengthen advocacy of relevant policies on preschool inclusive education and integrate the knowledge of inclusive education policy into the preschool teachers' training programs.

Third, interactions with people with disabilities have been found to be beneficial in improving preschool teachers' attitudes towards inclusion. This result implicated that the teacher training program should provide teacher candidates with opportunities to interact with people with disabilities face to face and encourage preschool teachers to include students with disabilities in their own classes (Loreman et al., 2013).

Although the current study reports important findings with respect to the relationships among preschool teachers' background variables, self-efficacy and attitudes towards inclusive education, there are several limitations that should be considered in interpreting these findings. First, although the sample size was quite large and the sample came from representative regions of China in this study, we obtained the data by using a convenient sampling method in each specific area. Therefore, the results of this study should be carefully summarised into the attitudes and self-efficacy of all in-service preschool teachers in China. Second, most of the five variables on teachers' characteristics are dichotomous items that might limit us from providing a more in-depth explanation of the impact of teachers' background variables on the attitudes of preschool teachers in China.

### ***Conclusion***

With the increasing attention in advancing early childhood inclusive education in mainland China, it is imperative to understand factors that influence teachers' confidence and

competence in delivering quality preschool inclusive instructions. This study advances the literature by providing new evidence to the predictive relationship between teachers' self-efficacy and attitudes towards inclusive education within the Chinese contexts, as well as the impacts of teacher background factors in alternating their attitudes towards inclusion via self-efficacy. The findings of this study can inform the development of teacher preparation and professional development programs and strengthen the workforce for early inclusion.

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