Research paper

Teacher self-efficacy and reasons for choosing initial teacher education programmes in Norway and New Zealand

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HIGHLIGHTS

- Teacher self-efficacy is related to motives for initial teacher education
- The NTSES found to have potential when used with preservice teachers
- Introduction of the Reasons for Choosing Teacher Education Scale
- Norwegian participants more conservative in responses to two instruments than New Zealanders

ARTICLE INFO

ABSTRACT

In samples of teacher education students in New Zealand and Norway, we explored their reasons for choosing teaching and their sense of self-efficacy for teaching. We examined the factor structure of the newly developed Reasons for Choosing Teacher Education Scale (RCTES) and the established Norwegian Teacher Self-Efficacy Scale (NTSES). The factor structure of the NTSES and the RCTES were consistent with expectations and previous research. We found that altruism, personal fit with teaching, and job security were the strongest reasons for going into teaching in both samples, and that teacher self-efficacy is related to motives for entering initial teacher education.

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1. Introduction

Numerous studies in different countries have shown that teaching is a stressful occupation, leading to burnout, low teacher self-efficacy, psychosomatic problems, and ultimately low teacher retention (Chan, 2002; Johnson et al., 2005; Liu & Onwuegbuzie, 2012; Montgomery & Rupp, 2005; C. Skaalvik, 2020; E.M. Skaalvik & Skaalvik, 2018; Stoeber & Rennert, 2008). Although prospective teachers are unlikely to be familiar with this literature, they typically have recently been pupils in school and seen first-hand the sources of teacher stress, such as disruptive behaviour and lack of student motivation. Additionally, they are likely to be aware of the negative portrayal of the teaching profession and the work of teachers in the media (Watt & Richardson, 2007, 2008). This raises questions about what motives students in higher education have for seeking initial teacher education, and about their future mastery expectations as teachers. They might reasonably ask: "Is this a profession I should enter, and will I be successful if I do?"

From a societal perspective, the question is: How can we attract the best possible applicants to become teachers (see Klassen et al., 2021 for a useful discussion of teacher recruitment). Hattie (2003)

has argued that teachers account for about approximately 30% of the variance of student achievement. Thus, attracting the best available candidates into the teaching profession and retaining them should be pressing concerns for governments around the world. The concerns about attracting strong candidates to the profession of teaching have been exacerbated by teacher shortages internationally (Fuller, 2022; Kotok & Knight, 2022; See et al., 2022). The need to understand the motivations behind students deciding to become teachers is as great as it has been in recent decades. One of the goals of our research was to develop a new and updated measure of the reasons students have for choosing teacher education based on interviews with students who have recently made that choice. Furthermore, we investigated how students responded to this instrument in two countries similar in size, but different in a number of interesting and informative characteristics (New Zealand and Norway). Our interest in looking at two countries concerns the issue of whether choice of teaching as a profession appears consistent, or if differences in context led to different reasons for choosing teaching as a career, subsequently necessitating different/contextual responses to teacher shortages. This could inform future, more wide-ranging studies, that investigate the choice of teaching as a profession in multiple and diverse settings.

Norway and New Zealand offer useful sites of comparison for studies of the motivations and self-efficacy of initial teacher education students as a consequence of a number of shared and contrasting characteristics. These two countries each have populations of close to five million. They share a history of centralized policy and practice for teacher education that has orchestrated the relocation of initial teacher education from teachers' colleges into universities since the 1990s. For both, this has led to efforts to engage initial teacher education students with research as well as teaching capabilities (Berg et al., 2016; Gunn et al., 2020; Smith, 2020). National data collected in the TALIS (OECD, 2019) study suggests that lower secondary school teachers in these countries have much in common, including: similar proportions of male and female teachers; the mean age of teachers (close to 44); and the mean work experience of teachers (close to 15 years). In both places almost 100 percent of teachers agreed or strongly agreed that "teachers and students usually get on well with each other"; just above one-third agreed or strongly agreed that "the teaching profession is valued in society"; and close to two-thirds were satisfied with the terms of their contracts, outside of salary. However, in contrast with each other, Norwegian teachers were more likely to be satisfied with their salaries than their New Zealand counterparts (Norway 47.6 percent/New Zealand 35.8 percent); and they reported spending a higher proportion of their time teaching and a lower proportion of their time on classroom management. Furthermore, primary school teachers in New Zealand teach 180 more hours per year on average than their Norwegian peers (OECD, 2022). A discussion of important cultural and contextual differences between New Zealand and Norway is beyond the scope of this article, but we suggest interested readers look to Hofstede's (2001) work on national cultural preferences and visit the TALIS (OECD, 2019) website to compare each country's profile. By using the same instrument with reasonably large samples in two countries, our first research question investigated initial teacher education students' reasons for choosing initial teacher education courses and whether these reasons differed in the two countries sampled.

Previous research has indicated that one reason individuals choose a profession is that they believe that they will be successful in it (Bandura, 2012; Hackett & Betz, 1995). Indeed, people's beliefs about the things they can or cannot do (their self-efficacy) have been shown to be extremely powerful in relation to their motivation toward career choice and development (Bandura, 1997; Blotnicky et al., 2018). Applying this argument to the issue of students choosing to enter teaching as a profession; regardless of their level of altruism or the attractiveness of teaching as a career, individuals who do not believe they will be successful at teaching are less likely to enter teacher education. As noted, prospective teachers are likely to have some awareness of the various skills and knowledge that teachers must utilise in their classrooms. These may be related to skills such as instruction, assessment, classroom management, and relationships with students. There is substantial research showing that teacher self-efficacy changes as individuals move from their training into their careers, as well as through their careers (Lazarides & Warner, 2020; Woolfolk Hoy & Spero, 2005); there are also factor analytic studies of teacher self-efficacy that suggest that initial teacher education students have a less differentiated view of these abilities than experienced teachers (Berg & Smith, 2014; Duffin et al., 2012). That is, initial teacher education students are more likely to say that they will be successful overall, whereas experienced teachers are more likely to say that they are good at some aspects of teaching, and less so with others. Nevertheless, it is not yet clear how/whether self-efficacy for teaching may be related to a person's decision to become a teacher. Thus, our second research question was: *What levels of teacher self-efficacy do initial teacher education students hold and do they differ in the two countries sampled?* As teaching environments can vary dramatically from one country to another, we were intetested in whether there are different levels of perceived self-efficacy that might lie behind choosing teaching as a profession in Norway and New Zealand.

An investigation of these two questions required measures of both the motivations that individuals have for going into teacher education, and the levels of self-efficacy they held with regard to their future success in their chosen career. Looking at options for such measures, we decided to develop a new and updated measure of reasons for choosing teaching as a career (the *Reasons for Choosing Teacher Education Scale:* RCTES). We address the arugment for this decision below. For measuring teaching self-efficacy, we chose the *Norwegian Teacher Self-Efficacy Scale* (NTSES) as it has reported strong measurement characteristics, and would be readily administered in a Norwegian setting, and an English version of the scale existed. Given that the RCTES is new and that the NTSES was already being used in different languages in different countries, we decided it would be worthwhile to look carefully at the measurement properties of the scales, in particular, their factor structures and whether those structures were comparable across samples. Thus, our third research question was: *Do the RCTES and the NTSES follow a six-factor structure as suggested by previous research and by the nature of the development of these instruments? Does this occur in both the Norwegian and New Zealand samples?*

Finally, we investigated the relationships between the factors for choosing teaching as a career, and the sense of self-efficacy that teacher education students have for teaching. Thus, our fourth research question was: *What is the nature of the relationships found between reasons for choosing initial teacher education and teacher self-efficacy?*

The rationale for each of these research questions is explored in more depth next.

1.1. Motivations for choosing teacher education

There is a considerable body of empirical and theoretical work related to people's motivations for entering the teaching profession (Watt & Richardson, 2007), such as teachers' identity development (Hong et al., 2017) and occupational commitment (Lauermann et al., 2017). Watt and Richardson (2007) charted this research back to the 1930s and noted the global interest in this topic. In a

review of 44 studies exploring the characteristics of students entering initial teacher education, Brookhart and Freeman (1992) found that "the consistent pattern has been that altruistic, service-oriented goals and other intrinsic sources of motivation are the primary reasons entering teacher candidates report for why they chose careers in teaching" (p. 46). This pattern remains evident in the literature. Specifically, several studies conclude that the most prominent motive is a desire to work with children (Holm, 1989; Kyriacou & Coulthard, 2000; Moran et al., 2001; Richardson & Watt, 2006). In some studies, this motive is expressed as a wish to contribute to children's development or learning, or to "make a difference" (Krečič & Grmek, 2005; Roness, 2012; Watt & Richardson, 2008). However, altruism is not the only motive for choosing teacher education. Raggl and Troman (2008) found that some students were motivated by work that they believed would give opportunities for a family life, and Watt and Richardson (2007) recognised the desire to get a secure job and a job with a high degree of flexibility as central motives. Additionally, motivations can vary across nations (Watt et al., 2012); building on this, it seems likely that motivations may also change over time as economic and other conditions fluctuate. Thus collecting data to update these findings was timely.

Using expectancy-value motivation theory, Watt and Richardson (2007) looked to the self, value, and task variables that Wigfield and Eccles (2000) theorised could be used to predict motivation and developed a theoretically and psychometrically robust tool, the FIT-Choice scale, that has proven capable of measuring people's motivation to teach in diverse contexts (Watt et al., 2012). Watt and Richardson (2007) reported that Intrinsic Value, Social Utility Value (altruism), and Perceived Teaching Ability were the highest reported influences among their sample of 1653 Australian initial teacher education students. Other motivational factors measured by the FIT-Choice scale included Personal Utility Values (family time, secure employment), Social Influences, Positive Prior Teaching and Learning Experiences, Perceived Teaching Abilities, and Fallback Career.

A little more recently in 2012, Skaalvik and Skaalvik interviewed 36 Norwegian teachers exploring their reasons for having joined the profession. Utilising an inductive process (rather than a theory-driven deductive process) in their data analysis, they identified five major categories of reasons that the teachers gave for choosing to enter initial teacher education: (a) Role Models, (b) Mastery Expectations based on previous mastery experiences gained working with children, (c) Desire to Work with Children and Help Children Learn (also expressed as Personal Value and Interest Value), (d) Utility Value, which encompassed both having a secure and a flexible job, and (e) Availability of Initial Teacher Education.

Building on Skaalvik and Skaalvik's (2012) interview study and a review of the literature the Reasons for Choosing Teacher Education Survey (RCTES) was developed to measure six reasons or motives for choosing teacher education in the context of Norwegian initial teacher education: Personal Fit, Job Security, Job Flexibility, Altruism, Easy Option, and Personal Development. These authors have worked for decades exploring teachers' beliefs and motivation and examined the historic as well as the current literature looking into why people go into teaching. Having conducted that review, the authors felt that a new instrument was needed that was more current with the motivations of prospective teachers, and was based on the wide-ranging interviews with individuals making that career decision. Thus, the RCTES was developed to measure six reasons or motives for choosing teacher education in the context of Norwegian initial teacher education: Personal Fit, Job Security, Job Flexibility, Altruism, Easy Option, and Personal Development. Personal Fit resembles Mastery Expectations that Skaalvik and Skaalvik (2012) found based on previous mastery expectations

when working with children. Four of these scales followed the findings from the interview study fairly closely and were key in the development of the RCTES. The findings from Skaalvik and Skaalvik's (2012) interview study also suggested that Personal Development might be a factor for choosing to become a teacher. Also, in the Norwegian context at least, it seemed that ease of access (Easy Option) might be a motivation for enrollment in initial teacher education in contrast to more competitive programs of study. Skaalvik and Skaalvik wanted the RCTES to be easy to administer as a part of larger studies; thus, it comprises 18 items and is far less extensive than the 60 item FIT-Choice scale, therefore reducing the likelihood of response fatigue from participants. Finally, as the RCTES is underpinned by an inductive approach to identifying themes raised by beginning initial teacher education students, it allows a fresh consideration of how these themes might be made sense of with a theoretical lens, beyond expectancy-value theory.

1.2. Teacher self-efficacy

In this study we used Bandura's (1997) self-efficacy theory to better understand how initial teacher education students' self-efficacy beliefs are related to their motivation to enroll in initial teacher education. We have sympathy with Wigfield and Eccles' (2000) argument that their expectancy construct is closely related to self-efficacy. However, the expectancy items contained in the FIT-Choice scale are broad conceptualisations of self in relation to teaching and are not sufficiently nuanced, wide ranging, nor theoretically consistent with Bandura's (1997) self-efficacy theory, or his (2006) guidelines for the development of self-efficacy scales, for the purposes of our study.

According to social cognitive theory, self-efficacy influences people's cognition and emotions, for instance, in how environmental opportunities and obstacles are perceived (Bandura, 1997). Efficacy beliefs therefore influence people's goals, values, and behaviour (Bandura, 2006). As emphasized by Bandura (2006) people with low efficacy beliefs tend to magnify possible problems and dwell on their shortcomings. They seek situations and activities for which they have high mastery expectations and avoid situations for which they have low mastery expectations. Drawing on social cognitive theory, we may therefore expect that the belief that one will be able to function well as a teacher (teacher self-efficacy) is positively associated with motivation to seek initial teacher education.

Bandura (1986) defined self-efficacy as "people's judgments of their capabilities to organize and execute the courses of action required to attain designated types of performance" (p. 391). Thus, self-efficacy (or mastery expectation) is a belief about what a person can do in a certain area or a certain situation, rather than judgements about one's attributes (Bong & Skaalvik, 2003; Zimmerman & Cleary, 2006). Most research on self-efficacy has been based on social cognitive theory (Bandura, 1977, 1997, 2006), and self-efficacy is conceptualized as a multidimensional construct (Bandura, 2006). Teacher self-efficacy concerns teachers' individual beliefs that they can successfully carry out the various professional tasks required of them in their own teaching context; it has been of interest to educational researchers for decades (Kleinsasser, 2014). This interest is a consequence of teacher self-efficacy being a measurable attribute that has been associated with an extensive list of good outcomes for teachers, their students, and their schools (Berg, 2022). Indeed, teacher self-efficacy has been found to be related to teacher retention, engagement, and improved job satisfaction (Brouwers & Tomic, 2000; Collie et al., 2012; Klassen et al., 2013; Klassen & Chiu, 2010; Skaalvik & Skaalvik, 2007, 2010, 2017; Wolters & Daugherty, 2007).

Several studies support the multidimensional nature of teacher self-efficacy (Avanzi et al., 2013;; ; Klassen et al., 2009; Skaalvik & Skaalvik, 2007). Skaalvik and Skaalvik (2007, 2010) provided a broad conceptualisation of the construct as individual teachers' beliefs in their own ability to plan, organize, and carry out activities that are required to attain given educational goals. Following Bandura's (1997, 2006) guidelines concerning item construction, Skaalvik and Skaalvik (2007) developed a six-dimensional "Norwegian Teacher Self-Efficacy Scale" (NTSES), which assesses self-efficacy for: Instruction, Adapting Education to Individual Students' Needs, Motivating Students, Keeping Discipline, Cooperating with Colleagues and Parents, and Coping with Changes and Challenges (for further information and a cross-cultural validation, see Avanzi et al., 2013).

The measurement of teacher self-efficacy has not been without difficulties, however. These difficulties have been discussed extensively elsewhere (see for example Berg, 2022; Skaalvik & Skaalvik, 2010). Concerns have included theoretical confusion arising from inconsistent grounding in Bandura's theory (Roberts & Henson, 2001), and differing approaches to measurement (Skaalvik & Skaalvik, 2010). It was in response to such concerns that Skaalvik and Skaalvik (2007) developed the NTSES. To ensure content validity, they based their scale on in-depth analysis of teachers work, and to eliminate theoretical confusion, they ensured they were measuring self-efficacy by beginning survey questions with the stem "How certain are you that you can ….".

1.3. Relations between self-efficacy and reasons for seeking initial teacher education

In this study we questioned if reasons for seeking initial teacher education would be associated with the initial teacher education students' teacher self-efficacy. Although a six-factor model of teacher self-efficacy has resulted from the NTSES, we talk about expectations for relationships of reasons for choosing teacher education with "teacher self-efficacy" as a single concept for sake of simplicity, knowing there are likely multiple factors for teacher self-efficacy. We hypothesized that reasons for choosing teacher education should be differentially related to teacher self-efficacy. Specifically, we expected that Personal Fit would be positively associated with teacher self-efficacy because these constructs are overlapping. The feeling that one has characteristics that will make oneself a good teacher resembles self-concept more that self-efficacy. Nevertheless, they are both self-perceptions of competence and tend to be positively correlated (Bong & Skaalvik, 2003). Secondly, we expected that Altruism would be positively related to teacher self-efficacy. More precisely, we suggest that seeking teacher education for the sake of making a positive difference for future students requires a belief that one will be able to make that difference. Thirdly, we had no theoretical reason to expect that teacher self-efficacy is positively associated with Job Security, Job Flexibility, or being an Easy Option. We did not expect people with high teacher self-efficacy to be more likely to choose an Easy Option. Lastly, drawing on social cognitive theory (Bandura, 1997), we expected that highly self-efficacious people are more concerned with Personal Development than low self-efficacious people: a robust self-efficacy belief is likely to lead an individual to see and take opportunities and possibilities for growth that others do not.

1.4. Research questions

Given the literature and assumptions discussed above, our goals in this study were to examine reasons for choosing teacher education, teacher self-efficacy, and the relationship between the two concepts in a cross-national study of beginning teachers in Norway

and New Zealand. We invited samples of students in teacher education programmes in both countries to participate and administered the RCTES and NTSES to those who consented. This enabled us to address the following specific research questions.

1. What are initial teacher education students' reasons for choosing initial teacher education courses and do these reasons differ in the two countries sampled?
2. What levels of teacher self-efficacy do initial teacher education students hold and do they differ in the two countries sampled?
3. Do the RCTES and the NTSES follow a six-factor structure as suggested by previous research and by the nature of the development of these instruments? Does this occur in both the Norwegian and New Zealand samples?
4. What is the nature of the relationships found between reasons for choosing initial teacher education and teacher self-efficacy?

2. Method

2.1. Participants and procedures

Both the RCTES and NTSES were administered to convenience samples of Norwegian and New Zealand initial teacher education students at the outset of their initial teacher preparation. Participation was voluntary. Ethical approval was obtained from the Norwegian Centre for Research Data (NSD) in Norway and the participants' universities in both countries. The study underwent consultation with Māori in New Zealand.

2.1.1. The Norwegian sample
Participants were 295 initial teacher education students enrolled at a university in Norway. Among the participants, 67.5% (n = 199) were females and 32.2% (n = 95) were males. Only one student did not report their sex. Mean age was 20.63 years (range 18−45, SD = 2.64). Having parents who were or had been teachers were reported as: none (78.0%), one of them (18.3%), and both (3.7%). Of the participants, 76.5% reported no previous teaching experience.

2.1.2. The New Zealand sample
Data were collected from 252 initial teacher education students from two different universities in New Zealand. The sample was 79.8% (n = 201) female and 19.8% (n = 50) male. As in the Norwegian sample, one student did not report their sex. The age of the participants ranged from 17 to 49 (M = 20.51, SD = 5.83). Representation by having a parent who was or had been a teacher (none, one of them, both) was 76.5%, 20.3%, 3.2% respectively. Of the students, 53.4% reported no previous teaching experience. Previous teaching experience was a notable difference between the two samples.

2.2. Instruments

2.2.1. Reasons for choosing teacher education scale (RCTES)
As noted, the RCTES was developed in order to measure six reasons or motives for choosing teacher education: Personal Fit, Job Security, Job Flexibility, Altruism, Easy Option, and Personal Development. Examples of items are: "I have characteristics that will make me a good teacher" (Personal Fit), "There always will be a need for teachers" (Job Security), "The teaching profession will give me time for family life" (Job Flexibility), "As a teacher I can contribute to shaping children's values" (Altruism), "The teaching profession will give me a possibility of personal development" (Personal Development), "It was easy to get into teacher education" (Easy Option). The items on the RCTES are shown in Appendix A.

Responses were given on a 5-point scale from "Not important at all" (1) to "Very important" (5). A Norwegian language version of RCTES was completed by participants in Norway and an English language version was completed by participants in New Zealand.

2.2.2. The Norwegian Teacher Self-Efficacy Scale (NTSES)

The NTSES (Skaalvik & Skaalvik, 2007) was developed following a careful analysis of the dimensions of teachers' work in Norway, where it has been used successfully in research examining the beliefs of in-service teachers. The NTSES comprises 24 items, with 4 items in each of six subscales: Instruction, Adapting Education to Individual Students' Needs, Motivating Students, Keeping Discipline, Cooperating with Colleagues and Parents, and Coping with Changes and Challenges. Responses to each item are given on a 7-point scale ranging from 1 "Not certain at all" to 7 "Absolutely certain" (Skaalvik & Skaalvik, 2010). The items on the NTSES are shown in Appendix B grouped within the six subscales. A detailed description of the subscales is provided by Skaalvik and Skaalvik (2007). The items in the NTSES may be well aligned with the roles of teachers in comparable contexts, including New Zealand (Berg & Smith, 2016, 2018). Avanzi et al. (2013) have argued that the NTSES is appropriate for use in other national settings. These authors confirmed the six-factor structure of an Italian version of the NTSES using multi-group confirmatory factor analysis. A Norwegian language version of NTSES was completed by participants in Norway and the English language version was completed by participants in New Zealand.

2.3. Data analysis

Statistical analyses were carried out using Mplus 7 (Muthén & Muthén, 2012) and IBM-SPSS28. We employed Exploratory and Confirmatory Factor Analysis to examine, test and confirm the internal structure of the instruments. Measurement Invariance (MI) analysis was utilized to test whether the same underlying latent constructs were being measured in the same way across Norwegian and New Zealand contexts. These are explained in detail as we present the results.

3. Results

As stated above, we had four research questions. The first two related to participants reasons for choosing education as a career and their perceived levels of self-efficacy for teaching. Additionally, we compared the New Zealand and Norwegian samples on these issues. Research question three investigated the factor structures of the RCTES and the NTSES across samples and how these structures relate to one another. The fourth question explored how the factors of the RCTES relate to the NTSES.

First we report the mean responses for each sample on the RCTES and the NTSES. We constructed scales for each of the six factors on each measure, and in the first analysis, compared these means using t-tests and Cohen's d (Cohen, 1988) for effect sizes. This analysis is slightly too simple given the nature of the measures and their relationships across samples, but we present it here to give the reader a straightforward understanding of the results, and because the use of these instruments in the future is likely to use the summed scale scores. When we look at the factor structures of the two instruments and their relationship to one another, we include a more sophisticated analysis looking at latent mean difference scores. Since the findings are essentially the same for the two analyses, we felt it would be useful to present the more readily comprehensible statistics first.

3.1. Research question one: Reasons for choosing teaching

The RCTES has six scales as described above. Each scale has three items on it, with response options ranging from 1 (low) to 5 (high). The reliabilities of these scales are discussed in detail in the section concerning the internal structure of the RCTES; using McDonald's omega as a measure of reliability, all factors showed good reliability for research purposes. Table 1 presents the means and standard deviations of the responses to the six scales for both samples. T-tests of the differences between the means between New Zealand and Norway are also provided, along with Cohen's d estimate of effect size.

The strongest reason for choosing teaching as a career for both samples is altruism, with a mean of 4.59 (out of a maximum of 5.00) for the New Zealand sample and 4.38 for the Norwegian sample. The mean differences here are significant at $p < .001$, and Cohen's d effect size = 0.36. Thus, although there are clear differences here, they are in the small to moderate level of magnitude. The next three scales are fairly close in both samples: Job Security, Personal Fit, and Personal Development. As can be seen in Table 1, the means range from the high 3's to the low 4's, with the differences between samples being significant at $p < .001$, and Cohen's d between 0.42 and 0.54. Again, the New Zealand means are higher than the Norwegian means. The weakest reasons for choosing teaching are Job Flexibility and Easy Option. Again the means differ between samples, with Job Flexibility following the same pattern as the other scales, but Easy Option showing strong differences. The mean for the New Zealand sample is much higher than for the Norwegian sample, with Cohen's d being 1.69. Although Easy Option is clearly the least important factor for either sample, it is more of a consideration for the New Zealand students.

3.2. Research question two: levels of teacher self-efficacy

The second research question concerned the students' responses to the NTSES, the teacher self-efficacy scale with responses ranging from 1 (low) to 7 (high). Reliability estimates for the scales were very high, as described in the section on the Internal Structure of the NTSES (see below). Means, standard deviations, t-tests, and Cohen's d are presented in Table 1. For both samples, the highest self-efficacy ratings were given for Cooperating, that is the ability to get along with colleagues and parents. Differences between samples were not significant. The ordering of ratings then varied for the two samples. The New Zealand sample students rated Motivating students as their second highest estimate of self-efficacy, followed by Instruction and Adapting. For the Norwegian sample, the second highest rating was given to Instruction, followed by Coping and Adapting. The ratings for the six teacher self-efficacy scales did not differ substantially from the highest to the lowest for either sample, suggesting perhaps a lack of differentiation on the part of the students. The New Zealand sample means ranged from 4.77 to 5.45, and the Norwegian sample ranged from 4.45 to 5.32. The New Zealand sample had higher means on all six scales, with four of those being significantly different. The largest effect size was for Motivating students, where the New Zealand sample felt much more confident (Cohen's $d = 0.66$).

3.3. Research question three: the internal structure of the instruments and their consistency across samples

We compared the internal structure of the two instruments and as well as the degree to which those structures are similar across samples, beginning with the RCTES.

Table 1
Difference Between Norwegian and New Zealand Samples on RCTES and NTSES factors.

	Norway		New Zealand					
	M	SD	M	SD	Df	t	p	Cohen's d
RTCES Factors								
Personal Fit	3.82	0.64	4.14	0.55	545	−6.31	<0.001	−0.54
Job Security	3.90	0.87	4.23	0.75	545	−4.90	<0.001	−0.42
Job Flexibility	3.08	0.97	3.34	0.79	545	−3.42	<0.001	−0.46
Altruism	4.38	0.65	4.59	0.49	545	−4.30	<0.001	−0.36
Personal Development	3.79	0.77	4.09	0.64	545	−4.99	<0.001	−0.42
Easy Option	1.28	0.51	2.50	0.91	545	−18.95	<0.001	−1.69
NTSES Factors								
Instruction	4.89	0.83	5.17	0.91	541	−3.70	<0.001	−0.32
Motivating	4.61	0.84	5.22	1.05	541	−7.49	<0.001	−0.66
Adapting	4.76	0.95	5.14	1.06	541	−4.44	<0.001	−0.38
Discipline	4.45	1.02	4.77	1.20	541	−3.32	<0.001	−0.29
Cooperating	5.32	0.85	5.45	1.01	541	−1.67	0.10	−0.15
Coping	4.80	0.88	4.96	1.10	541	−1.75	0.08	−0.15

3.3.1. Internal structure of RCTES

The RCTES is a new instrument that has been developed to measure six motivations for choosing teacher education. To examine the internal structure of the RCTES, and to allow for a cross-validation of the results, we combined data ($n = 547$) across our two samples. Then we randomly divided into two independent subsamples: an EFA sample ($n = 273$) and a CFA sample ($n = 274$). We conducted exploratory factor analysis (EFA) on the first subsample to identify the dimensions (i.e., factors) of the RCTES. We preferred the maximum likelihood (ML) extraction method with oblique rotation because we expected that the factors would be correlated. To verify the factorability of the data, Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) test of sampling adequacy results were inspected. Following DeVellis (2012), we used multiple criteria to determine the number of factors retained. Parallel analysis (PA; Horn, 1965), minimum average partial (MAP) test (Velicer, 1976), and visual scree tests were examined. The PA method has been suggested for deciding an accurate number of factors to accept (Watkins, 2006).

Initial EFA revealed ten factors with eigenvalues greater than one, but without an interpretable pattern. Both Bartlett's Test of Sphericity ($\chi2$ (666) = 4202.78, p < .0001) and the Kaiser−Meyer−Olkin statistic (0.82) indicated that the correlation matrix was appropriate for factor analysis. PA suggested extraction of six factors, whereas MAP test indicated seven factors. The visual scree test provided support for a seven factor solution. Based on these results, six, seven and eight factors were extracted and examined. Items with pattern coefficients less than .30 were not considered salient. Cross loading items and factors with only two items were excluded. After closer examination, a six-factor solution was deemed to be the most interpretable solution. These six factors explained 74.1% of the total variance and were then named based on the common characteristics of the items loaded on respective factors. EFA results of the 18-item reasons for choosing teacher education scale (RCTES) are presented in Table 2.

Next, a confirmatory factor analysis (CFA) was employed to the second subsample to confirm the factor structure of the proposed scale resulting from EFA (Costello & Osborne, 2005). For CFA analysis, we used the robust maximum likelihood (MLR) estimator for estimating the parameters (Raykov, 2012). As suggested in the literature (Cheung & Rensvold, 2002; Fan & Sivo, 2005, 2007; Hu & Bentler, 1999; Vandenberg & Lance, 2000), multiple criteria were used when evaluating the goodness of fit of the models. We adopted the following criteria when determining acceptable or good model fit: root mean square error of approximation (RMSEA), standardized root mean square residuals (SRMR) with values less than 0.08 (acceptable) or 0.05 (good), and the comparative fit index (CFI) and Tucker-Lewis index (TLI) with values > 0.90 (acceptable) or 0.95 (good).

The alpha coefficient (Cronbach, 1951), conceived as an internal consistency estimate, is the most widely used reliability coefficient in applied research. However, the assumptions underlying alpha (especially tau-equivalence assumption) are unlikely met in practice (Sijtsma, 2009; Teo & Fan, 2013). Therefore, in this study we report McDonald's (1999) omega (ω) coefficient as a better estimate of reliability.

The hypothesized six-factor model yielded good fit to the CFA subsample ($\chi2 = 162.81$, $df = 120$, RMSEA = 0.04, CFI = 0.97, TLI = 0.96, SRMR = 0.05). The correlations among the factors resulting from CFA analysis are presented in Table 3.

RCTES factor intercorrelations were mostly weak to moderate ranging from 0.11 to 0.52. The only nonsignificant correlation was observed between Altruism and Easy Option factors. RCTES factor reliabilities exceeded the commonly accepted threshold value of 0.70. CFA factor loadings of the RCTES items are given in Table 4.

All indicators had moderate to high correlations with their respective factors and ranged from 0.58 to 0.90. Both EFA and CFA analyses provided evidence on the 6-dimensional factor structure of RTCES. Descriptive statistics of RCTES items are summarised in Table 5. As evident from Table 5, New Zealand initial teacher education students had higher scores on almost all the RCTES items than their Norwegian peers.

3.4. Internal structure of NTSES

To our knowledge, the internal structure of the NTSES has not previously been examined when used with initial teacher education students; therefore, it was important to provide evidence on the internal structure of NTSES in order to establish that the subscales that are recommended are supported by empirical analysis. Confirmatory factor analyses (CFA) were carried out with both Norwegian and New Zealand samples to evaluate and confirm the proposed six-factor structure of NTSES (Skaalvik & Skaalvik, 2007). Separate CFAs were utilized for each sample.

The hypothesized six-factor model yielded acceptable fit to both Norwegian ($\chi2 = 499.50$, $df = 237$, RMSEA = 0.06, CFI = 0.94, TLI = 0.93, SRMR = 0.04) and New Zealand data ($\chi2 = 384.75$, $df = 237$, RMSEA = 0.05, CFI = 0.96, TLI = 0.95, SRMR = 0.04). Factor correlations and reliabilities are presented in Table 6.

Correlations among NTSES factors were moderate to high varying from 0.60 to 0.79 for Norwegian sample and from 0.71 to 0.89 for the New Zealand sample. Each dimension had high

Table 2
Exploratory factor analysis of the 18-item RTCES.

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Personal Fit (PF)						
PF1. I have characteristics that will make me a good teacher	−.026	.005	−.033	.076	**.798**	.009
PF2. I am good at teaching	.127	−.062	.060	−.131	**.605**	.054
PF3. The teaching profession fits my personal characteristics	−.037	.117	−.101	.029	**.654**	−.020
Job Security (JS)						
JS1. I want a secure job	−.013	.066	**−.923**	.028	.017	−.099
JS2. I want a secure income	.028	−.038	**−.741**	−.117	.079	.055
JS3. There always will be a need for teachers	.054	−.049	**−.618**	−.070	.011	.180
Job Flexibility (JF)						
JF1. The teaching profession will give me time for family life	.019	.103	.010	**−.789**	.024	.031
JF2. As a teacher I will have holidays at the same time as my children	−.069	.045	.013	**−.811**	.071	.007
JF3. Teachers have short working days and long holidays	.056	−.058	−.136	**−.503**	−.100	−.039
Altruism (AL)						
AL1. As a teacher I can contribute to shaping children's' values	−.010	**.855**	−.046	−.026	−.004	−.085
AL2. As a teacher I have an influence on future generations	.013	**.842**	−.027	−.038	−.006	.077
AL3. As a teacher I can support children and young people in their development	.043	**.623**	.089	−.008	.053	.112
Personal Development (PD)						
PD1. As a teacher I can develop myself	.083	.045	.001	−.047	.015	**.750**
PD2. As I teacher I can follow up and work with my interests	−.048	−.008	.051	−.048	.115	**.672**
PD3. The teaching profession will give me a possibility of personal development	.000	.063	−.115	.095	−.096	**.724**
Easy option (EO)						
EO1. It was easy to get into teacher education	**.939**	−.018	−.015	.024	.052	.013
EO2. Teacher education is easy to complete	**.851**	.019	.024	−.047	.041	−.064
EO3. Teacher education was the higher education programme where I was accepted	**.750**	.027	−.029	.044	−.054	.038

Table 3
RTCES factor correlations and reliabilities.

	PF	JS	JF	AL	PD	EO
Personal Fit (PF)	—					
Job Security (JS)	**0.19**	—				
Job Flexibility (JF)	**0.28**	**0.52**	—			
Altruism (AL)	**0.35**	**0.17**	**0.18**	—		
Personal Development (PD)	**0.27**	**0.38**	**0.25**	**0.30**	—	
Easy Option (EO)	**0.19**	**0.45**	**0.31**	0.11	**0.28**	—
Reliability (ω)	0.74	0.80	0.77	0.80	0.73	0.85

Note. Significant ($p < .05$) correlations are highlighted in bold.

Table 4
Standardized factor loadings and standard errors of the RTCES items.

Item	λ (SE) − CFA sample
PF1	0.71 (0.05)
PF2	0.69 (0.05)
PF3	0.69 (0.05)
JS1	0.82 (0.04)
JS2	0.84 (0.04)
JS3	0.62 (0.06)
JF1	0.73 (0.06)
JF2	0.83 (0.05)
JF3	0.58 (0.06)
AL1	0.79 (0.05)
AL2	0.77 (0.05)
AL3	0.70 (0.06)
PD1	0.74 (0.06)
PD2	0.63 (0.07)
PD3	0.67 (0.06)
EO1	0.90 (0.03)
EO2	0.87 (0.03)
EO3	0.63 (0.06)

Table 5
Descriptive statistics of RCTES items.

	Norway				New Zealand			
	M	SD	Skewness	Kurtosis	M	SD	Skewness	Kurtosis
PF1	4.03	0.77	−0.50	0.19	4.31	0.64	−0.49	−0.24
PF2	3.33	0.86	−0.42	0.58	3.83	0.75	−0.49	0.81
PF3	4.11	0.76	−0.80	1.30	4.30	0.61	−0.49	0.52
JS1	3.96	1.02	−0.78	−0.10	4.23	0.88	−0.95	0.27
JS2	3.60	1.08	−0.58	−0.19	4.12	0.92	−1.07	1.19
JS3	4.13	0.91	−0.81	−0.10	4.35	0.86	−1.37	1.81
JF1	3.33	1.14	−0.17	−0.70	3.85	0.89	−0.67	0.50
JF2	3.34	1.19	−0.33	−0.78	3.64	1.13	−0.55	−0.36
JF3	2.58	1.13	0.42	−0.50	2.55	1.00	0.32	−0.21
AL1	4.46	0.72	−1.40	2.20	4.51	0.62	−0.98	0.42
AL2	4.31	0.81	−1.05	0.77	4.63	0.60	−1.83	5.17
AL3	4.35	0.72	−0.87	0.24	4.62	0.56	−1.12	0.26
PD1	3.69	0.98	−0.53	−0.07	4.25	0.77	−0.94	0.95
PD2	3.77	0.94	−0.63	0.25	3.95	0.77	−0.39	−0.18
PD3	3.89	0.88	−0.54	0.12	4.06	0.84	−0.71	0.24
EO1	1.35	0.69	2.43	6.94	2.69	1.04	0.13	−0.39
EO2	1.27	0.56	2.13	4.06	2.38	0.96	0.22	−0.43
EO3	1.21	0.59	3.26	11.77	2.42	1.28	0.39	−0.95

NTSES items are summarised in Table 8. Like RCTES, New Zealand students had higher scores than Norwegian students on most of the NTSES items.

In sum, the CFA results provided validity evidence on the internal structure of both RCTES and NTSES for their use in both countries with pre-service teachers. After confirming the factor structure, we continued with MI analyses in order to determine whether a) RCTES and NTSES have the same underlying factor structure for both settings (configural invariance), b) each item has the same importance regardless of the country (metric invariance), and c) results can be compared between Norwegian and New Zealand samples, as there could be cultural differences (scalar invariance).

reliability estimates (ω) ranging from 0.87 to 0.92 for both samples. CFA factor loadings (Table 7) were moderate to high on their respective factors for all items.

Our analyses confirmed the multidimensionality of 24-item NTSES with aforementioned six factors. Descriptive statistics of

3.4.1. Measurement invariance (MI)

Multi-group confirmatory factor analyses (MG-CFA), based on means and covariance structure analysis (MACS), were employed

Table 6
NTSES factor correlations and reliabilities.

	Instruction	Motivating	Adapting	Discipline	Cooperating	Coping	Reliability (ω)
Instruction	–	**0.76**	**0.76**	**0.69**	**0.60**	**0.69**	0.87
Motivating	**0.89**	–	**0.77**	**0.79**	**0.69**	**0.69**	0.88
Adapting	**0.86**	**0.88**	–	**0.67**	**0.72**	**0.76**	0.92
Discipline	**0.71**	**0.78**	**0.78**	–	**0.67**	**0.72**	0.91
Cooperating	**0.72**	**0.76**	**0.76**	**0.79**	–	**0.74**	0.89
Coping	**0.75**	**0.76**	**0.80**	**0.81**	**0.81**	–	0.86
Reliability (ω)	0.87	0.89	0.91	0.92	0.91	0.90	–

Note. Significant correlations ($p < .05$) are highlighted in bold. Correlations for Norwegian sample: above the diagonal. Correlations for New Zealand sample: below the diagonal.

Table 7
Standardized factor loadings and standard errors of the NTSES items.

Item	λ (SE) – Norwegian	λ (SE) – New Zealand
Instruction1	0.78 (0.03)	0.72 (0.05)
Instruction2	0.80 (0.03)	0.87 (0.02)
Instruction3	0.79 (0.03)	0.79 (0.03)
Instruction4	0.77 (0.03)	0.80 (0.03)
Motivating1	0.76 (0.03)	0.80 (0.03)
Motivating2	0.83 (0.03)	0.83 (0.04)
Motivating3	0.81 (0.03)	0.84 (0.03)
Motivating4	0.83 (0.03)	0.83 (0.03)
Adapting1	0.83 (0.03)	0.77 (0.04)
Adapting2	0.83 (0.03)	0.87 (0.02)
Adapting3	0.87 (0.02)	0.89 (0.02)
Adapting4	0.89 (0.02)	0.86 (0.02)
Discipline1	0.82 (0.03)	0.78 (0.03)
Discipline2	0.87 (0.03)	0.88 (0.02)
Discipline3	0.88 (0.03)	0.90 (0.02)
Discipline4	0.83 (0.03)	0.84 (0.03)
Cooperating1	0.82 (0.03)	0.76 (0.04)
Cooperating2	0.83 (0.03)	0.86 (0.02)
Cooperating3	0.81 (0.03)	0.88 (0.02)
Cooperating4	0.77 (0.03)	0.83 (0.03)
Coping1	0.69 (0.05)	0.80 (0.05)
Coping2	0.87 (0.02)	0.85 (0.04)
Coping3	0.83 (0.04)	0.87 (0.02)
Coping4	0.67 (0.04)	0.75 (0.06)

by country to test whether the same underlying latent construct was being measured in the same way (measurement invariance, MI) across Norwegian and New Zealand contexts. Measurement non-invariance in this case may mean that teacher self-efficacy beliefs or reasons for choosing teacher education have a different structure or meaning to Norwegian and New Zealand pre-service teachers, and thus their scores cannot be meaningfully compared. As emphasized by Chan (2011) "we cannot assume the same construct is being assessed across groups by the same measure" without tests of measurement invariance (p. 108). Thus, we tested the following hierarchically nested MI models (Vandenberg & Lance, 2000).

1. Configural invariance: same item-factor pattern across groups
2. Metric invariance: factor loadings are equivalent across groups
3. Scalar invariance: item intercepts (or thresholds) are equivalent across groups

Researchers have generally agreed that scalar invariance is sufficient for establishing MI (Ercikan & Lyons-Thomas, 2013; Schmitt & Kuljanin, 2008; Vandenberg & Lance, 2000). However, full scalar invariance is difficult to achieve in practice (Vandenberg & Lance, 2000). Therefore, some researchers argue that partial

Table 8
Descriptive statistics of NTSES items.

	Norway				New Zealand			
	M	SD	Skewness	Kurtosis	M	SD	Skewness	Kurtosis
Instruction1	4.63	0.98	−0.30	1.12	4.98	1.02	−0.16	0.75
Instruction2	4.81	1.02	−0.29	0.47	5.32	0.99	−0.15	−0.01
Instruction3	4.96	0.99	−0.24	0.27	5.22	1.19	−0.43	0.45
Instruction4	5.17	0.93	−0.37	0.56	5.18	1.08	−0.17	−0.12
Motivating1	4.82	1.01	0.00	0.10	5.13	1.20	−0.22	−0.24
Motivating2	4.63	1.07	0.22	0.01	5.22	1.22	−0.44	0.25
Motivating3	4.59	0.91	−0.27	1.66	5.29	1.21	−0.35	−0.09
Motivating4	4.38	0.93	−0.20	1.56	5.25	1.20	−0.36	0.08
Adapting1	4.80	1.06	−0.36	0.84	5.14	1.20	−0.44	0.41
Adapting2	4.81	1.05	−0.20	0.24	5.05	1.17	−0.28	−0.14
Adapting3	4.67	1.07	−0.38	0.35	5.16	1.24	−0.44	0.10
Adapting4	4.72	1.05	−0.40	0.69	5.23	1.22	−0.40	−0.02
Discipline1	4.44	1.21	−0.32	0.38	4.89	1.21	−0.23	−0.23
Discipline2	4.32	1.21	−0.21	0.49	4.47	1.51	−0.15	−0.70
Discipline3	4.31	1.10	−0.27	0.94	4.64	1.35	−0.25	−0.40
Discipline4	4.72	1.08	−0.59	1.26	5.07	1.30	−0.35	−0.28
Cooperating1	5.43	0.98	−0.73	2.25	5.64	1.12	−0.85	0.99
Cooperating2	5.26	0.97	−0.59	2.10	5.28	1.16	−0.52	−0.17
Cooperating3	5.01	1.07	−0.53	1.24	5.34	1.21	−0.61	0.18
Cooperating4	5.58	0.94	−0.49	0.38	5.56	1.03	−0.59	0.05
Coping1	5.13	1.06	−0.33	0.32	4.91	1.31	−0.41	0.17
Coping2	4.72	1.09	−0.46	0.71	5.00	1.21	−0.22	−0.08
Coping3	4.96	0.99	−0.62	1.20	5.05	1.24	−0.42	−0.05
Coping4	4.41	1.09	−0.36	0.27	4.85	1.31	−0.41	0.09

scalar invariance is sufficient for examining latent mean differences (Byrne et al., 1989). Scalar invariance means that "observed scores are related to the latent scores; that is, individuals who have the same score on the latent construct would obtain the same score on the observed variable, regardless of their group membership" (Milfont & Fischer, 2010, p. 115). The fit of invariance models is typically assessed by comparing the fit of two nested models. However, there is no consensus in the literature about which fit indices should be reported since fit statistics are not equally sensitive to various model characteristics (e.g. sample size, model complexity, number of groups compared). We used the decision rule of ΔCFI ≤ 0.01, suggested by Cheung and Rensvold (2002), which is the most frequently used criterion in the literature. For scaling purposes, factor loadings of the referent (marker) items were fixed to one across groups. We selected referent indicators using the method described by Stark et al. (2006). Configural, metric, and scalar invariance tests were assessed sequentially using MLR estimator. MI results are summarised in Table 9.

As seen in Table 9, the configural models provided a good fit indicating that both Norwegian and New Zealand pre-service teachers utilized the same conceptualisation of the RCTES and NTSES constructs when responding to the scale items. Metric invariance test results indicate that factor loadings were equivalent across sub-groups. Results for the metric invariance model supported further investigation of MI. Scalar invariance results, however, indicated a lack of equivalence in item intercepts. We then tried to pinpoint the source of this non-invariance. Modification indices suggested that two intercepts from RCTES ("As a teacher I can contribute to shaping children's values," and "As a teacher I can develop myself") and two NTSES intercepts ("Get all students in class to work hard with their schoolwork," and "Successfully use any instructional method that the school decides") should be allowed to vary across samples. Because full scalar invariance tests were not met, we freed these intercepts sequentially across groups. As presented in Table 9, partial scalar invariance was achieved for both instruments after freeing these intercepts.

3.4.2. Difference between Norwegian and New Zealand initial teacher education students

After achieving partial scalar invariance, we then investigated if there were significant differences between Norwegian and New Zealand pre-service teachers in their self-efficacy beliefs and reasons for choosing teacher education programmes. We compared latent mean differences between Norway and New Zealand samples using partial scalar invariance model as the baseline. First, we constrained the latent means of the subconstructs across groups and tested model fit to see if the differences in means were meaningful. Then, to be able to compare the latent means, we constrained the Norwegian sample latent means to 0 and the latent

means of the New Zealand sample were free to estimate. Constraining latent means across New Zealand and Norwegian samples significantly worsened model fit for both RTCES ($\chi 2 = 634.70$, $df = 268$, RMSEA = 0.07, CFI = 0.86, TLI = 0.84, SRMR = 0.21) and NTSES (($\chi 2 = 1138.19$, $df = 514$, RMSEA = 0.07, CFI = 0.91, TLI = 0.90, SRMR = 0.10) suggesting that there were differences between Norwegian and New Zealand pre-service teachers in their self-efficacy beliefs and reasons for choosing teacher education programmes.

Analysis of latent means indicated that on average, New Zealand students scored 0.32, 0.37, 0.19, 0.31, 0.18 and 1.37 units higher than Norwegian students on Personal Fit, Job Security, Job Flexibility, Altruism, Personal Development and Easy Option respectively based on the metric of the referent indicators. Associated effect sizes were 0.62, 0.48, 0.24, 0.56, 0.28, and 1.85 respectively. Regarding self-efficacy beliefs, again New Zealand participants scored 0.27, 0.71, 0.43, 0.35, 0.15, and 0.25 units higher than the Norwegian sample on Instruction, Motivating, Adapting, Discipline, Cooperating, and Coping factors respectively. Corresponding effect sizes for these latent mean differences were 0.38, 0.87, 0.48, 0.39, 0.17, and 0.29. Findings of the latent mean comparisons between Norwegian and New Zealand pre-service teachers showed that New Zealand pre-service teachers had higher scores on all RCTES and NTSES factors than their Norwegian peers. These findings reflect those presented at the beginning of the Results section with simple means and standard deviations based on the simple sums of the item level response to form scales.

3.5. Research question four: relationships between reasons for choosing teacher education and teacher self-efficacy

With regard to exploring the relationship between reasons for choosing a teacher education programme and teacher self-efficacy, we applied a MG-CFA specifying twelve factors: the six dimensions each of the RCTES and NTSES. The same model was applied to the Norwegian and New Zealand samples simultaneously, which allowed us to compare the relative magnitude of the associations between latent factors. The estimated model displayed a satisfactory fit ($\chi^2 = 2608.86$, $df = 1566$, RMSEA = 0.05, CFI = 0.92, TLI = 0.91, SRMR = 0.06). The Sattora-Bentler (Satorra & Bentler, 2010) scaled chi-square difference test between the estimated model and the restricted model in which factor correlations constrained to be equal across samples was significant ($\Delta\chi^2 = 172.49$, $\Delta df = 78$, $p < .001$) suggesting that correlations among RCTES and NTSES factors differed between Norwegian and New Zealand samples. Table 10 summarizes the associations among teacher self-efficacy beliefs and reasons for choosing teacher education programme.

For both countries, we found significant correlations between

Table 9
Measurement invariance results.

Model	χ^2	df	RMSEA	CFI	TLI	SRMR	ΔCFI
RCTES							
Configural	334.412	240	0.038	0.965	0.955	0.052	–
Metric	346.050	252	0.037	0.964	0.957	0.059	−0.001
Full Scalar	459.978	264	0.052	0.927	0.915	0.067	−0.037
Partial Scalar (e10&e13 free)	383.674	262	0.041	0.955	0.946	0.060	−0.009
NTSES							
Configural	938.156	474	0.063	0.936	0.926	0.043	–
Metric	964.190	492	0.062	0.935	0.927	0.052	−0.001
Full Scalar	1096.985	510	0.068	0.919	0.913	0.061	−0.016
Partial Scalar (e5&e21 free)	1056.392	508	0.066	0.925	0.918	0.058	−0.010

Note. RCTES, Reasons for Choosing Teacher Education Scale; NTSES, Norwegian Teacher Self-Efficacy Scale; RMSEA, Root Mean Square Error of Approximation; CFI, Comparative Fit Index; SRMR, Standardized Root Mean-square Residual.

Table 10
Relationship between teacher self-efficacy beliefs and RCTES.

Norwegian

	Instruction	Motivating	Adapting	Discipline	Cooperating	Coping
Personal Fit (PF)	**0.52**	**0.52**	**0.51**	**0.39**	**0.49**	**0.50**
Job Security (JS)	0.07	0.09	**0.15**	0.13	0.06	0.05
Job Flexibility (JF)	0.03	0.04	0.13	0.08	0.07	0.10
Altruism (AL)	**0.28**	**0.29**	**0.23**	**0.14**	**0.19**	**0.19**
Personal Development (PD)	0.10	**0.21**	0.11	**0.16**	**0.22**	**0.18**
Easy Option (EO)	−0.02	−0.02	−0.06	0.05	−0.17	−0.06
New Zealand						
Personal Fit (PF)	**0.41**	**0.38**	**0.37**	**0.23**	**0.32**	**0.34**
Job Security (JS)	0.11	0.14	0.10	0.14	0.12	0.10
Job Flexibility (JF)	**0.21**	**0.19**	**0.16**	0.13	**0.17**	0.13
Altruism (AL)	**0.39**	**0.40**	**0.39**	**0.31**	**0.43**	**0.32**
Personal Development (PD)	**0.27**	**0.34**	**0.31**	**0.31**	**0.39**	**0.26**
Easy Option (EO)	0.10	**0.14**	**0.15**	**0.19**	**0.14**	0.11

Note. Significant correlations ($p < .05$) are highlighted in bold.

pre-service teachers' self-efficacy beliefs and their reasons for selecting the teaching professions. Personal Fit, Altruism, and Professional Development were significantly correlated with almost all the teacher self-efficacy belief factors for the Norwegian sample. Job security, Job Flexibility and the Easy Option were not found to be related to teaching self-efficacy. A roughly similar pattern was found for the NZ sample in that Personal Fit, Altruism, and Professional Development showed a similar pattern of moderately strong correlations with the NTSES variables. However, for the NZ sample, Job Flexibility and Easy Option also showed some significant correlations, but while statistically significant, they were weak (none above $r = 0.21$). The only consistently nonsignificant relationship for the NZ sample was for Job Security.

The magnitude of the relationships among constructs of interest differed across countries. It is worth noting that, the highest correlations were observed between Personal Fit and NTSES factors in the Norwegian sample. For the NZ sample, however, the highest correlations were between Altruism and teacher self-efficacy dimensions. Personal Fit and Professional Development were found to be roughly equally correlated with self-efficacy for the NZ sample.

4. Discussion

This study looked at why individuals chose initial teacher education as a field of study in New Zealand and Norway, differences in those reasons by country, and how reasons for choosing teacher education relate to teacher self-efficacy. To that end, the Reasons for Choosing Teacher Education Scale (RCTES) was developed as a six-factor instrument based on the literature and a series of interviews and focus groups with initial teacher education students on why they entered initial teacher education. The Norwegian Teacher Efficacy Scale (NTES) assesses the sense of self-efficacy that individuals have in six key areas of teaching. It is an extant measure that has been used and tested extensively in Norway with in-service teachers. A sample of teacher education students in each country formed the data set for the research.

4.1. Summary of results

We began the analyses by constructing scales based on the existing scales for the NTSES and the hypothesized scales for the RCTES. We then calculated mean responses for each sample and compared means across the two countries. Altruism was rated most highly by both samples, followed by Job Security, Personal Fit, and Personal Development. Job Flexibility was less important, and Easy

Option was not a factor at all for the Norwegian sample, and fairly low for the New Zealand sample. The New Zealand sample had higher means for all six scales, with the Easy Option scale being much higher for the New Zealand sample (but still last on their list). The ordering of the reasons for choosing teaching were very similar for the two samples.

The NTSES results showed that the participants had moderate to strong levels of self-efficacy, and that this was the case across all six scales. Again, the New Zealand sample had higher mean scores than the Norwegian sample, but these differences were not as strong as for the RCTES. We essentially replicated this analysis using latent means derived from the measurement invariance analysis. The findings were basically the same as with the simple summated scale means.

Exploratory and confirmatory factor analyses confirmed the hypothesized six-factor structure for each scale in both countries. McDonald's omega reliability coefficient met satisfactory levels for each scale. Intercorrelations within the RCTES were lower than the ones for the NTSES. That is, reasons for choosing education were not strongly related to one another, but teacher self-efficacy ratings *were* highly intercorrelated.

Next, a multi-group confirmatory factor analysis was performed on each measure to see if the factor structures were similar across countries for each scale. Results indicated that while the factor loadings were equivalent across each country, the intercepts for two items in each scale varied somewhat. This required "freeing" the intercepts somewhat in order to reach partial scalar invariance. In sum, the results showed substantial, but not perfect, similarity between countries on each measure.

Finally, reasons for choosing teacher education were related to teacher self-efficacy beliefs for the two countries. Overall, Personal fit, Altruism, and Personal Development were significantly correlated with teacher self-efficacy for both samples. Job Security, Job Flexibility, and Easy Option were not correlated with teaching self-efficacy for the Norwegian sample, and had correlations that were significant, but under .21 for the New Zealand sample. Overall, it can be said that these relationships were highly similar for the two countries.

4.2. Implications

We now turn to the implications of our findings, both theoretical and practical, again organized by the order of our research questions. Our first question concerned the reasons that students gave for choosing teaching as a profession. Both for Norwegian and New Zealand students, the strongest motive for choosing a teacher

education was what we termed Altruism − a desire to work with children, contribute to their development, and to "make a difference". This finding supports previous research in different countries (see Krečič & Grmek, 2005; Watt et al., 2012). Further, we found that in both Norway and New Zealand, Personal Fit, Job Security, and opportunities for Personal Development were moderate and relatively equally important motives for choosing teacher education. Thus, the results clearly indicate that initial teacher education students have multiple motives for choosing teacher education, but that altruism is the prime motivator. The analysis also revealed that Easy Option (e.g., choosing teacher education because it was available or had affordable recruitment requirements) was the least prominent motive in both samples, indicating that choosing teacher education for most students was a conscious and well thought out choice, rather than an easy pathway that students drifted into.

The second research question asked how Norwegian and New Zealand pre-service teachers differed in their teacher self-efficacy beliefs and reasons for choosing teacher education programmes. We see that the New Zealand sample report significantly higher means for all the RCTES and NTSES factors. We do not know what accounts for these differences. However, we note that the a greater proportion of participants in the New Zealand sample reported having previous teaching experience than was evident in the Norwegian sample. Furthermore, in a previous study that compared the teacher self-efficacy beliefs of pre-service primary school teachers from New Zealand, England, and Malaysia (Berg & Smith, 2014), the authors also found New Zealand pre-service teachers reported being more self-efficacious than their peers from other settings. Berg and Smith (2014) sought to make sense of their quantitative findings through a series of focus group interviews with pre-service teachers of different nationalities and found that both culture and context were the most likely explanations of difference. Class size and the amount of time spent in student teaching varied dramatically between the Malaysian and New Zealand cohorts, with Malaysian students having much less experience and being expected to teach classes twice as large as their New Zealand peers. However, data available from TALIS (OECD, 2019) indicate that contextual differences, such as class size and preferred pedagogical approaches, between primary schools in New Zealand and Norway are not as great. A follow up qualitative study could help identify any contextual differences evident in the nature of teachers' work and perceptions of the challenges that teachers face. Cultural differences between New Zealand and Norway may offer an additional explanation of the more conservative responses of the Norwegian sample. However, further research is needed to put such a speculation to the test.

Our third question concerned whether the factor structure of the two measures followed the hypothesized six-factor models. Also, we were interested in whether the factor structure was the same for both countries. As mentioned in the summary, we found both scales to be well represented by a six-factor model, and that the structures across countries were fairly similar. Our findings provide evidence for the factor structure and use of the NTSES in Norway and New Zealand with pre-service teachers. This is encouraging in that it supports previous arguments that the NTSES can be used outside of Norway to good effect (Avanzi et al., 2013; Berg & Smith, 2018) as the NTSES may be well aligned to the work of teachers in comparable education systems (Berg & Smith, 2018), and has already been used successfully in a large Italian study of in-service teachers (Avanzi et al., 2013). Our analyses also indicate that the NTSES can be of value to researchers interested in exploring pre-service teacher self-efficacy. The NTSES was developed according to Bandura's (1997) self-efficacy theory, and his (2006) guidance for the development of self-efficacy scales

(Skaalvik & Skaalvik, 2007, 2010). This is important as the field of teacher self-efficacy has a history of theoretical and methodical issues. Roberts and Henson (2001) argued that "the construct validity of scores from a variety of instruments purporting to measure teacher efficacy and related constructs have come under significant fire" (p. 5). A common critique of such studies is that they are not always well-underpinned with a strong understanding of Bandura's conceptualisation of self-efficacy and are theoretically muddled (see Roberts & Henson, 2001; Skaalvik & Skaalvik, 2007; Zee & Koomen, 2016). Also, Berg and Smith (2018) argued that the six-factor structure of the NTSES "Offer(s) a multifaceted and nuanced scale that is capable of greater differentiation among various activity domains within teaching" (p. 533). By reflecting a broader understanding of the work of teachers, this measure is likely to be of value for teacher educators seeking to understand pre-service teacher self-efficacy beliefs and to provide differentiated and focussed support for pre-service teachers.

The fourth research question explored the nature of the relationships found among reasons for choosing teacher education and teacher self-efficacy. Drawing on social cognitive theory, we expected that teacher self-efficacy would be positively associated with various motivations to seek teacher education. In this study we found that, for both the Norwegian and the New Zealand sample, teacher self-efficacy was positively associated with three of the motives for seeking teacher education: Personal Fit, Altruism, and Personal Development. The associations with the Personal Fit factor captures the idea that if a person's self-perceived capacities and characteristics are well aligned to the teaching profession and to being a good teacher, they may be motivated to enrol in an initial teacher education programme. We acknowledge that these beliefs are very similar to teacher self-efficacy beliefs and are likely to be affected by the sum of individual self-efficacy beliefs relating to a person's ability to carry out the actions that they believe are necessary to be successful in teaching. Thus, it is likely that beliefs about one's Personal Fit for teaching will be affected in part, by the same antecedents that Bandura (1997) argued affect self-efficacy beliefs: previous experiences of mastery (I have been successful in activities like this before); vicarious experience (People I identify with make great teachers); and verbal persuasion (People who know me well tell me that I would make a great teacher). However, the items that make up the Personal Fit scale are general and very different from self-efficacy items evident in the NTSES. NTSES items are context and activity specific, in keeping with guidance for the construction of self-efficacy scales (Bandura, 1997, 2006), whereas items in the Personal Fit scale are broad conceptualisations of self in relation to teaching. We see Personal Fit and teacher self-efficacy as separate, but overlapping constructs, and given their similarities, it is not surprising that they are correlated. As for Altruism, in this case, the wish to help children learn and grow, we may speculate that acting (e.g., starting an initial teacher education) to realize such a wish requires the belief that one may succeed. Thus, the associations between (a) teacher self-efficacy and (b) Personal Fit and Altruism support theoretical expectations.

This study also showed that, in both samples of initial teacher education students, teacher self-efficacy was positively associated with Personal Development. As noted in the introduction, one may expect that high self-efficacious people have higher expectations for Personal Development (e.g., learning, understanding, and problem solving) than low self-efficacious people. Therefore, Personal Development may be a general motive for the career choices of high self-efficacious people. For the New Zealand sample, but not the Norwegian sample, Job Flexibility and Easy Option were also significantly associated with teacher self-efficacy. Although the associations were weak, the findings were unexpected and need to be further explored in future research.

5. Limitations

There are two main limitations to this study. The first concerns the representativeness of the convenience samples used. We have two fairly small, Western countries with centralized systems of education. Although we see more similarities than differences in our findings, this cannot be taken for an argument for the generalizability of the findings internationally. We encourage replication and extension of this work in settings that are distinctly different than the ones used here. The second is that our work here is purely quantitative; we do not know what our participants might have told us in interviews or focus groups, and such information would surely round out what we have found here. These limitations notwithstanding, we believe the work presented here provides us with substantial new and useful understandings of why people choose teaching as a profession, and a new tool to explore those understandings further.

6. Conclusion

In this study we found that NTSES and the RCTES have factor structures that are consistent with the models used for their development and that they hold potential for use with initial teacher education students in our samples. We suggest that both scales may be useful to researchers in initial teacher education in similar contexts, for instance, to study changes in both motives and teacher self-efficacy across time. Furthermore, we have shown teacher self-efficacy to be related significantly to three factors from the RCTES: Personal Fit, Altruism, and Personal Development in both samples. More work is needed to understand the exact nature of this relationship, but this does suggest that teacher self-efficacy may serve as an indirect motivator for student enrolment in initial teacher education programmes. We found that Altruism was the dominant factor in pre-service teachers' decisions to take up initial teacher education. Finally, in our comparison of Norwegian and New Zealand initial teacher education students, we found Norwegian participants to be more conservative in their responses to both instruments. Following Berg and Smith (2014), we speculate that culture and context are likely to explain this and should be considered in international comparison of teacher self-efficacy beliefs; however, once again, we suggest further investigation is needed to understand these differences.

Data availability

The data that has been used is confidential.

Appendix A

Reasons for Choosing Teacher Education Survey

People choose teacher education for different reasons and many students have multiple reasons for their choice. On a scale from 1 to 5, how important were each of the possible reasons below for your choice?

Personal fit (PF)

- I have characteristics that will make me a good teacher
- I am good at teaching
- The teaching profession fits my personal characteristics

Job security (JS)

- I want a secure job
- I want a secure income
- There always will be a need for teachers

Job Flexibility (JF)

- The teaching profession will give me time for family life
- As a teacher I will have holidays at the same time as my children
- Teachers have short working days and long holidays

Altruism (AL)

- As a teacher I can contribute to shaping children's' values
- As a teacher I have an influence on future generations
- As a teacher I can support children and young people in their development

Personal development (PD)

- As a teacher I can develop myself
- As I teacher I can follow up and work with my interests
- The teaching profession will give me a possibility of personal development

Easy Option (EO)

- It was easy to get into teacher education
- Teacher education is easy to complete
- Teacher education was the higher education programme to which I was admitted

Response categories

(1) *Not* important *at all;* (5) *Very important.*

Appendix B

Norwegian Teacher Self-Efficacy Scale.

Instruction

How certain are you that you can.

- Explain central themes in your subjects so that even the low-achieving students understand.
- Provide good guidance and instruction to all students regardless of their level of ability.
- Answer students' questions so that they understand difficult problems.
- Explain subject matter so that most students understand the basic principles.

Adapt instruction to individual needs

- Organize schoolwork to adapt instruction and assignments to individual needs.

- Provide realistic challenge for all students even in mixed ability classes.
- Adapt instruction to the needs of low-ability students while you also attend to the needs of other students in class.
- Organize classroom work so that both low- and high-ability students work with tasks that are adapted to their abilities.

Motivate students

- Get all students in class to work hard with their schoolwork.
- Wake the desire to learn even among the lowest achieving students.
- Get students to do their best even when working with difficult problems.
- Motivate students who show low interest in schoolwork.

Maintain discipline

- Maintain discipline in any school class or group of students.
- Control even the most aggressive students.
- Get students with behavioural problems to follow classroom rules.
- Get all students to behave politely and respect the teachers.

Cooperate with colleagues and parents

- Cooperate well with most parents.
- Find adequate solutions to conflicts of interest with other teachers.
- Collaborate constructively with parents of students with behavioural problems.
- Cooperate effectively and constructively with other teachers, for example, in teaching teams.

Cope with change

- Successfully use any instructional method that the school decides to use.
- Manage instruction regardless of how it is organized (group composition, mixed age groups, etc.).
- Manage instruction even if the curriculum is changed.
- Teach well even if you are told to use instructional methods that would not be your choice.

Response categories

(1) *Not certain at all*, (3) *quite uncertain*, (5) *quite certain*, (7) *absolutely certain*.

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