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Self-efficacy among Classroom, Subject and Special Education Teachers

Timo Saloviita¹, Abdullah Ahmed Almulla²

Abstract

Teachers' self-efficacy beliefs are considered important in determining the success of teachers as educators. This study examines the actual level of teacher self-efficacy, including instructional strategies, classroom management and student engagement, and investigates its relationships with teacher variables of gender, years of experience, teacher category and grade level. The participants comprised 1764 Finnish practicing teachers, including 824 classroom teachers (grades 1–6), 575 subject teachers (grades 7–9) and 365 special education teachers. Teachers' overall level of self-efficacy was high, but differences existed between teacher categories. Special education teachers scored highest in all dimensions of self-efficacy, while subject teachers scored lowest. Gender differences were found in some subdomains of self-efficacy. Teachers' self-efficacy showed linear growth with increasing experience. However, a plateau in development was found during the mid-career. Teachers with higher self-efficacy also had a more positive attitude towards inclusive education of students with special educational needs.

Keywords: *Self-Efficacy, Inclusive Education, Teachers, Finland, Survey.*

Introduction

The concept of self-efficacy was introduced by Albert Bandura in his seminal article during the seventies (1977) and later developed in his book (1997). Bandura defined the concept as 'beliefs in one's capabilities to organize and execute courses of action required to produce given attainments' (Bandura, 1997, 3). The concept achieved considerable attention and was also adopted by the field of education. Following Bandura's definition, self-efficacy in education has been understood as teachers' confidence in their individual and collective capability to influence students' learning (Klassen et al. 2011). The construct validity of the concept has been proven in numerous studies. Teachers' self-efficacy has been sensitive to specific training effects (Bleicher 2004; Peebles and Sal 2014; van Dinther, Dochy and Segers 2011) and work experience (Klassen and Chiu 2010; Romi and Leyser 2006) and has been associated with higher resilience to burnout (Betoret 2006; Skaalvik and Skaalvik 2007), higher job satisfaction for teachers (Caprara et al. 2006; Klassen and Chiu 2010), better success in teaching (Brownell and Pajares 1999; Caprara et al. 2006; Gibson and Dembo 1984; Goddard, Hoy and Woolfolk Hoy 2000) and more positive attitudes towards inclusive education (Savolainen et al. 2012; Soodak and Podell 1993; Soodak, Podell and Lehman 1998). A comprehensive review of the links of self-efficacy to these and other variables is provided by Pajares (1996) for academic settings and Zee and Koomen (2016) for school teachers.

Teachers' self-efficacy beliefs have been frequently studied in association with teachers' opinions on inclusive education. The interest in explaining teachers' opinions on inclusion has been motivated by their esteemed importance when striving for more inclusive schools (European Agency for Development in Special Needs Education 2009; United Nations Educational, Scientific and Cultural Organization 2009). The studies on the factors possibly associated with a more positive orientation towards inclusion have usually not found high correlations with background variables. Demographic variables, such as age or gender, have had no or only weak associations with teachers' attitudes (Avramidis and Norwich 2002; Chazan 1994; de Boer, Pijl and Minnaert 2011; Scruggs and Mastropieri 1996). Other variables somewhat associated with more positive opinions have included the amount of prior contact with people with disabilities (Wilkerson 2012), training in special education (Ahsan, Sharma and Deppeler 2012), positive work experience (Avramidis and Kalyva 2007) and availability of extra support in terms of cooperation with other professionals (Minke et al., 1996). Thus far, the best explanatory variables have been environmental

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or organisational factors, such as the teacher's professional role (Chiner and Cardona 2013) or the student's level of disability (Moberg 2003; Scruggs and Mastropieri 1996).

It has been supposed that teachers' self-efficacy could explain their attitudes towards inclusion. The results seem to depend on the specific scale used. When the self-efficacy scale of Gibson and Dembo (1984) was applied, teachers with lower self-efficacy, indeed, considered regular education classrooms more often inappropriate for students with certain types of special educational needs (Podell and Soodak 1993; Soodak and Podell 1993). When the Teachers' Sense of Efficacy Scale (TSES) (Tschannen-Moran and Woolfolk Hoy 2001) was used, at most low associations between these constructs were found among preservice and in-service teachers (Sarı, Çeliköz and Seçer 2009) or among in-service teachers (Saloviita, accepted for publication). When the Teacher Efficacy for Inclusive Practices scale (TEIP) (Sharma, Loreman and Forlin 2012) was used, higher, but not usually large, correlations between self-efficacy and teachers' attitudes towards inclusion emerged (Kuittinen 2017; Malinen, Savolainen and Xu 2012; Savolainen et al. 2012; Yada and Savolainen 2017). Because the TEIP scale was specifically designed to measure teacher efficacy in the context of inclusion, its higher sensibility may be due to this property. However, these higher correlations have not been repeated among preservice teachers (Aiello et al. 2017; Saloviita 2015).

The studies on teacher self-efficacy have mainly concentrated on the association of self-efficacy with important variables around teachers' attitudes and functioning. Less interest has been devoted to describing the actual level of teacher self-efficacy or its association with demographic variables or teachers' working situations, such as teacher category or grade level. One exception has been the study of Klassen and Chiu (2010), which showed that female teachers scored lower than male teachers in classroom management self-efficacy while lower grade teachers scored higher in self-efficacy than other teachers. Teachers' self-efficacy also increased from early career to mid-career, after which it began to fall again (Klassen and Chiu 2010).

The aim of the present study is to investigate the general level of teacher self-efficacy and its association with teacher category, gender and years of teaching experience. A second aim is to look more closely at the association of self-efficacy and attitudes towards inclusion. The low correlations reported between the measures of self-efficacy and inclusion (Sarı, Çeliköz and Seçer 2009; Saloviita, accepted for publication) may be caused by the skewness of the distributions. In the measures of self-efficacy, teachers have typically obtained high mean scores, which indicate the accumulation of responses to one end of the distribution (Klassen and Chiu 2010; Tschannen-Moran and Woolfolk Hoy 2001). Therefore, the association between self-efficacy and attitudes towards inclusion was studied by using statistical methods which avoid the problem of the skewness of distributions. Teachers' self-efficacy beliefs are considered important in determining the general success of teachers as educators (Zee and Koomen 2016). An examination of the level of self-efficacy among classroom, subject and special education teachers is expected to reveal possible strengths and weaknesses and disclose fields in need of development.

Methods

Participants

The participants of this study were 1764 practicing teachers in Finnish primary schools around the country, including 824 classroom teachers, 575 subject teachers and 365 special education teachers. Of the participants, 1390 (79%) were female and 373 (21%) male. Their mean age was 47 years, and on average, they had been working as teachers for 18 years. According to official statistics, about 80% of the primary school teachers in Finland were female (Finnish National Agency for Education 2018). The sample, thus, accurately reflected the general gender distribution. The size of N slightly varies in different computations because of variable missing data.

Setting

Primary schools in Finland have nine grades, with students from ages 7–16. The classrooms are small, with a mean class size lower than 20 (Organization for Economic Co-operation and Development 2018). The first six grades are mainly instructed by classroom teachers with five-year university training. The students in the three upper grades are instructed by subject teachers who also have a five-year master's training, which includes a major in their own subject and a minor in education.

Special education teachers have five years of special education teacher training or, alternatively, a minor in special education if they have some other teacher qualification (Finnish National Agency of Education 2018). Special education teachers usually work in special education classrooms. They may also work in special education clinics, where they give individual or small-group instruction. About 22% of all students participate in these teaching clinics every year. Special education teachers may also work in regular classrooms as co-teachers. The number of students in Finland diagnosed as having special educational needs is large, rising to a total of 7.7% in 2017 (Statistics Finland 2018). A majority of them receive special education in separate classrooms, while a minority are integrated into the mainstream classrooms.

Data Collection

Data were collected by 33 voluntary preservice teachers in 2015 as part of their requirements in a course on statistical methods. Each course participant or a small group was given a sample of Finnish municipalities. They then collected e-mail addresses from official school websites for teachers from primary schools in their assigned municipality and sent each potential study participant an e-mail with a link to the inquiry. The cover letter explained that participation was voluntary and anonymous. In all, 137 municipalities were chosen from the total list of 317 Finnish municipalities. The selection was made in alphabetical order and ceased when the course participants had collected the requisite number of responses (at least 50 each). The survey was returned by 1764, or 26%, of the teachers contacted.

Survey Instrument

Besides the items measuring self-efficacy, the questionnaire contained a scale measuring work orientation and attitudes towards inclusion. Detailed results from these latter scales are published in a separate study (Saloviita, accepted for publication). It also contained items on some demographic variables including gender, age, teacher category, main subject, teacher qualification, present occupation and years of teaching.

Teachers' Sense of Efficacy Scale (TSES). Teachers' self-efficacy was measured using a 12-item short form of the 24-item Teachers' Sense of Efficacy Scale (TSES) (Tschannen-Moran and Woolfolk Hoy 2001). The scale was based on Bandura's definition and some prior scales measuring teachers' self-efficacy, including Bandura's own scale. The main challenge in the construction of the scale was finding the optimal level of task specificity. The psychometric properties of the scale were refined in several studies. The scale is considered to be a measure of teachers' evaluations of their own likely success in teaching. It had three factors in the sample of in-service teachers: efficacy for instructional strategies, efficacy for classroom management and efficacy for student engagement. It was found that the short form, which was used here, correlated strongly with previous measures of personal teaching efficacy and indicated reasonable construct validity (Tschannen-Moran and Woolfolk Hoy 2001). The items of the scale are presented in Table 1. For the cross-tabulation, the distribution of the scale was recoded into three categories so that about 20% of the sample would belong to low- and 20% to high-scoring categories.

Teachers' Attitudes towards Inclusive Education Scale (TAIS). Teachers' attitudes towards inclusion were measured with a 10-item Teachers' Attitudes towards Inclusive Education Scale (TAIS), a one-dimensional scale with good to excellent psychometric properties in the Finnish teacher populations (Saloviita 2015). Scoring of the items was made with a five-point Likert scale. The reliability of the scale in this sample was $\alpha = 0.90$. Its one-dimensionality in the present sample was shown in a separate study (Saloviita and Tolvanen 2017).

Data Analysis

The data were analysed using the SPSS Statistical Package Version 24. In addition to descriptive statistics, including means, standard deviations, percentage distributions and Pearson product-moment correlations, some statistical significance tests were performed, and the effect sizes were calculated (Ellis 2009). A principal axis factor analysis was performed for the TSES, and the reliability of the scale was calculated using Cronbach's alpha.

Results

The factor analysis of the TSES using the principal axis method and varimax rotation produced three factors perfectly identical to those originally presented by Tschannen-Moran and Woolfolk Hoy (2001). Cronbach's reliability of the scale was good or acceptable. For the full scale, it was $\alpha = 0.87$, and for the three subscales,

the results were, for instructional strategies, $\alpha = 0.78$; for classroom management, $\alpha = 0.89$; and for student engagement, $\alpha = 0.75$. The skewness of the TSES was -0.570 , while the standard error of skewness was 0.059 . The distribution, thus, departed strongly from symmetry and had a long left tail. Teachers' average scores on the TSES (48.7) were much above the scale's neutral midpoint (36).

Each single factor had four items scored 1–5. Teachers scored highest in the factor of instructional strategies (mean = 17.18) and then in the factor of classroom management (mean = 16.41). The difference between these two factors was statistically significant, as measured by the pairwise test, $t(1729) = 14.07$, $p < 0.000$. The teachers scored lowest in the factor of student engagement (mean = 15.06). Its difference from classroom management also was statistically significant $t(1707) = 23.25$, $p < 0.000$. The correlations among the three factors were high, being on the level of $r = 0.476$ – 0.499 .

The comparison of TSES sum scores among classroom, subject and special education teachers gave a statistically significant F value (Table 2). The post hoc tests (Bonferroni) confirmed that classroom and special education teachers scored equally, but subject teachers scored lower than classroom teachers ($d = 0.48$) and lower than special education teachers ($d = 0.61$). The results were almost similar in all three factors; subject teachers scored lower than classroom or special education teachers. In the factor of instructional strategies, classroom teachers also scored lower than special education teachers, but the effect size of this difference remained small, $d = 0.19$.

No gender differences were found in the sum score of the TSES or factor 1 (instructional strategies). However, male teachers scored higher than female teachers in factor 2 (classroom management), $d = -0.21$, and female teachers scored slightly higher than male teachers in factor 3 (student engagement), $d = 0.13$.

A linear trend was observed in the TSES scores across years of teaching experience, $\chi^2(40) = 52.23$, $p < 0.000$. Figure 1 shows the TSES scores in subsequent groups of experience. When teachers with 0–10 years of teaching experience ($N = 504$) were compared with those having more than 10 years of experience ($N = 1235$), the difference was statistically significant, $t(1685) = -7.74$, $p < 0.000$, indicating an effect size of $d = -0.41$. More experienced teachers scored higher in all three factors of the TSES. The effect sizes were $d = -0.24$ for factor 1 (instructional strategies), $d = -0.42$ for factor 2 (classroom management) and $d = -0.31$ for factor 3 (student engagement), indicating larger differences existing in the latter two factors.

The subject teacher's major was associated with the TSES sum score, $F(3, 489) = 6.67$, $p < 0.000$. The difference between the highest scoring (history, etc.) and lowest scoring (mathematics, etc.) major was of a moderate size, $d = 0.64$.

When the low medium and high scoring groups of TSES and TAIS were cross-tabulated, a weak to modest association between the variables was found (Table 3). Teachers, who strongly supported inclusion scored twice more often high than low in self-efficacy. However, negative attitude towards inclusion did not predict teacher's position in self-efficacy.

Discussion

The results of the teacher survey indicated that Finnish primary school teachers' sense of self-efficacy generally was on a high level. The majority of the participants were in agreement regarding most items of the TSES, as seen in Table 1. Of the three factors of the scale, the teachers felt themselves most confident in the field of instructional strategies, also the factor where the differences among teacher categories remained the smallest. In the factor of classroom management, about 10–20% of the participants expressed some uncertainty. The lowest level of self-efficacy was attained in the factor of student engagement. Specifically, the subject teachers scored conspicuously low in items concerning their efficacy in motivating students and cooperating with families. Both of these issues, however, are important. Increasing student motivation, parental involvement and teachers' home visits has been found to have positive effects on learning (Hattie 2009).

In all three factors of the TSES, the subject teachers' level of self-efficacy was lower than that of the classroom or special education teachers. For the total scores, the magnitude of this difference was on a moderate level. A possible reason for lower scores is subject teachers' shorter educational training compared with the other two teacher categories. Subject teachers only study education as their minor, while classroom

and special education teachers study it as their major. The personal interests of subject teachers may also focus more on their own specific subject matter than on the education of children in general (Avramidis and Norwich 2002). In the factor of instructional strategies, both subject and classroom teachers scored lower than special education teachers. This may indicate that special education teachers used a wider reserve of teaching strategies than the other two groups. It was indeed found that the Finnish special education teachers more frequently used differentiation and co-teaching than classroom or subject teachers (Saloviita 2018).

The comparatively low level of self-efficacy among subject teachers in the factor of classroom management deserves attention. One of the main differences between successful and less successful teachers is their ability to maintain order in the classroom (Stronge and Ward 2011). The top-quartile teachers had fewer classroom disruptions, better management skills and better relationships with their students than the bottom-quartile teachers (Stronge and Ward 2011). It may be that the subject teachers' instructional situation, in which they circulate among several classrooms, makes it more difficult for them to develop personal relationships with their students. This may develop into problems in classroom management and, finally, higher transfer rates of students into special education. The latter occurrence has been confirmed by national statistics (Finnish National Agency for Education 2017).

Some gender differences were observed in the self-efficacy scores. Male teachers scored higher in classroom management, and female teachers scored higher in student engagement, while no differences between the sexes were found in instructional strategies. These differences seem to follow usual gender stereotypes.

It is quite natural to expect that teachers' sense of self-efficacy increases with their growing experience as teachers. This finding has been confirmed previously when novice and career teachers were compared using the TSES (Tschannen-Moran and Woolfolk Hoy 2007). Klassen and Chiu (2010) found a non-linear association in which teacher self-efficacy was highest in the midst of their career. In the present study, the association was linear, and the development of teacher self-efficacy continued through their whole career. The difference in favour of older teachers was equally confirmed in all three factors of the TSES. There were also qualitative differences between the age groups: older teacher specifically distinguished in the fields of classroom management and student engagement. The results also showed that after four years of teaching experience, the development of self-efficacy did slow down.

The association of self-efficacy with attitudes towards inclusion was studied by coding the teachers in three categories on the basis of their scores (low, medium, high) and by cross-tabulating the groups. The results showed that teachers who scored high in the self-efficacy scale scored twice more often high in attitudes towards inclusion than teachers who scored low in self-efficacy. It seems plausible that the causal link mainly would go from self-efficacy to attitudes towards inclusion: teacher's higher self-efficacy awakens positive attitudes towards inclusion because the teacher has higher reliance on his or her skills to manage potential problems caused by it. However, the observed association between these variables was not high.

The teachers' self-efficacy in teaching was found to be on a high level. Its weakest point was subject teachers, especially their trust in themselves to maintain classroom order, motivate students and cooperate with families. Compared with other teacher categories, the Finnish subject teachers also were found to be more negative towards inclusive education (Saloviita, accepted for publication) and less inclined to use versatile teaching strategies that would help in its implementation (Saloviita 2018). All these issues probably are best met through increasing professional cooperation in the schools, as exemplified by previous studies (e.g. Janney et al. 1995).

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Table 1. The percentage of teachers who agree or strongly agree on items of the Teachers' Sense of Efficacy Scale (TSES).

Item	Teacher category			
	Special %	Class %	Subject %	
	N:	365	824	575
Factor 1: Instructional strategies				
1. Use a variety of assessment strategies	94	91	87	
2. Provide alternative explanation when students are confused	100	93	96	
3. Craft good questions for your students	94	93	89	
4. Implement alternative strategies in your classroom	97	95	91	
Factor 2: Classroom management				
5. Control disruptive behaviour in the classroom	91	91	83	
6. Get children to follow classroom rules	93	94	88	
7. Calm a student who is disruptive or noisy	91	94	82	
8. Establish a classroom management system	87	86	79	
Factor 3: Student engagement				
9. Get students to believe they can do well in schoolwork	92	90	77	
10. Help your students value learning	72	78	60	
11. Motivate students who show low interest in schoolwork	76	62	47	
12. Assist families in helping their children do well in school	76	75	44	

Table 2. Teacher's self-efficacy scores in TSES and post hoc comparisons (Bonferroni).

Teacher category	N	Mean	SD	<i>df</i>	<i>F</i>	<i>p</i>	<i>post hoc</i>
<i>Total</i>	1708	48.66	5.52	2,1705	53.29	> 0.000	
1 Classroom teacher	799	49.40	5.37				1 > 2
2 Subject teacher	557	46.76	5.65				2 < 1, 3
3 Special education	352	49.99	4.81				3 > 2
<i>Instructional strategies</i>	1760	17.16	2.38	2,1757	13.08	> 0.000	
1 Classroom teacher	822	17.19	2.04				1>2, 1<3
2 Subject teacher	574	16.87	2.10				2 < 1, 3
3 Special education	364	17.56	1.85				3 > 1, 2
<i>Classroom management</i>	1730	16.41	2.48	2,1727	29.45	> 0.000	
1 Classroom teacher	810	16.72	2.38				1 > 2

2	Subject teacher	564	15.76	2.66				2 < 1, 2
3	Special education	356	16.72	2.21				3 > 2
<i>Student engagement</i>		1708	15.06	2.30	2,1705	83.29	> 0.000	
1	Classroom teacher	799	15.47	2.17				1 > 2
2	Subject teacher	557	14.09	2.30				2 < 1, 3
3	Special education	352	15.70	2.09				3 > 2

Table 3. Cross-tabulation of low-, medium- and high-scoring teachers in TSES and TAIS. $\chi^2(4) = 20.49$, $p < 0.000$, $\Phi = 0.11$.

TSES score		TAIS score			Total N=1667
		Low N = 335	Medium N=950	High N= 382	
Low	N = 311	22.5	62.1	15.4	100%
Medium	N = 1,038	19.2	57.8	23.0	100%
High	N = 318	20.8	49.4	29.9	100%
Total	N = 1,667	20.1	57.0	22.9	100%

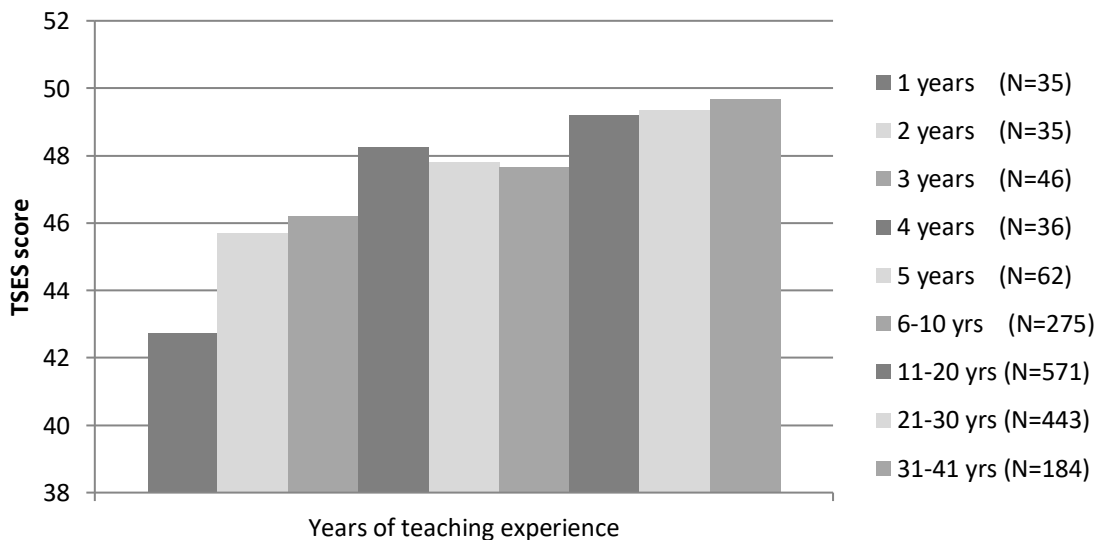


Figure 1. Self-efficacy sum scores (TSES) across years of teaching experience.