The Importance of Collegial Support in Novice First and Second Career Teachers'

Self-Efficacy Construction and Attrition in the Teaching Profession.

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Abstract

High attrition among novice teachers has become one of the important causes of the global teacher shortage. Compared with first career teachers (FCTs), second career teachers (SCTs)' attrition has not been much studied. Previous literature reported that teachers' attrition is associated with collegial support and self-efficacy. However, the extent to which these three factors are related requires more research. Hence, this study explores the relationship between collegial support (both professional and emotional) and attrition, mediated by self-efficacy for both SCTs and FCTs. This survey was conducted on 1510 secondary school teachers from French-speaking Belgium. The path analysis results showed that professional support had a significant association with SCTs' and FCTs' attrition. Emotional support had a significant association only with FCTs' attrition. Self-efficacy is a vital factor that mediates FCTs' attrition but not SCTs'. This study adds to the body of knowledge on novice SCTs' and FCTs' attrition, self-efficacy and collegial support in the school context.

Keywords: novice second career teachers, first career teachers, self-efficacy, professional support, emotional support, attrition

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Self-Efficacy Construction and Attrition in the Teaching Profession.

Introduction

Many countries are facing an increasing teacher shortage (Azoulay, 2022; Ingersoll, 2012; Jarzabkowski, 2003; Tigchelaar et al., 2010; Yost, 2006). Two problems have caused the phenomenon. One is the recruitment problem. The teaching profession is becoming less attractive (Schmitt & deCourcy, 2022) because of the evolution of working conditions (e.g., workload, accountability measures, etc.) and lack of prestige. Another is the attrition problem, that is teachers leaving the teaching profession in an early career stage because of uncompetitive salaries, complexity of the induction process, and lack of collegial support (Guarino et al., 2006; Harrell et al., 2004). Approximately 40% to 50% of novice teachers leave teaching in their first five years for these reasons (Ingersoll, 2012).

In response to these two problems, researchers have suggested two solutions, which have been taken into account by policymakers (Bullock, 2022; Ronfeldt & McQueen, 2017). Regarding the lack of people deciding to pursue a teaching career, one solution proposed was to attract different profiles of teachers, namely second-career teachers (SCTs) (Baeten & Meeus, 2016; Troesch & Bauer, 2017). They are individuals who have previously worked in another profession and decided to become teachers as a second (third, or fourth, etc.) career (Chambers, 2002). In the same vein, first career teachers (FCTs) can be described as individuals who followed a more traditional path to becoming teachers (Zee & Koomen, 2016).

Regarding the attrition issue, scholars have strongly advocated for providing support to novice teachers (Baker-Doyle, 2012; Baker-Doyle & Yoon, 2020; Hawe & Ghali, 2007; Hong, 2012; Ingersoll & Strong, 2011). Currently, providing support to early career teachers has

become common in schools (e.g., mentorship, onboarding program) (Baker-Doyle, 2012; Bullock, 2022; Ingersoll, 2012; Ronfeldt & McQueen, 2017). Teachers' attrition, however, has not been stopped. The attrition rate is still high in most European countries as well as states in America (Federičová, 2021; Johnson & Birkeland, 2003; Schmitt & deCourcy, 2022).

According to previous research, one major reason for early-career teachers' attrition is not receiving enough collegial support to help them adapt to school life (Beatty, 2000; Löfgren & Karlsson, 2016; Porter et al., 2019; Schutz & Zembylas, 2009). Collegial support, rooted in House's (1981) view, could be described as the combination of professional support (e.g., instructional resources) and emotional support (e.g., feelings of care, love, trust, and compassion). Research demonstrated that collegial support can decrease attrition (Lipscomb et al., 2022; Shen, 2009) by boosting self-efficacy, that is the ability to successfully manage the teaching profession role (Mintz, 2019; Skaalvik & Skaalvik, 2016). Several studies also reported that self-efficacy had a significant effect on teachers' long-term teaching retention and job satisfaction (Dong et al., 2020; Ruitenburg & Tigchelaar, 2021; Zee & Koomen, 2016).

Although self-efficacy has widely been considered a key mediator of teachers' life-long development, decreasing burnout and attrition, we still know little about the dynamic of self-efficacy in specific contexts (Dong et al., 2020; Duran et al., 2022; Zee & Koomen, 2016). For instance, few studies have focused on exploring the self-efficacy of SCTs. Moreover, how self-efficacy is enhanced within the school-embedded social network still has room to be discussed.

This study aims at examining how collegial support is associated with SCTs' and FCTs' attrition, and the mediating role of self-efficacy in this association. By doing so, a clear, fine-grained and context-based understanding of how these variables work on early-career

teachers can be obtained.

<div align="center">**Theoretical Framework**</div>

In this section, I will go through the three aspects that relate to teachers' attrition. Firstly, early career teachers' attrition crisis and the contribution of collegial support to their attrition will be discussed. Secondly, the merits of interpreting collegial support based on a social network perspective will be covered. Professional support and emotional support will also be elaborated on. Thirdly, I will focus on the relationship between self-efficacy and collegial support. The diagram of the theoretical framework is shown in Figure 1.

Figure 1

Theoretical Framework Diagram
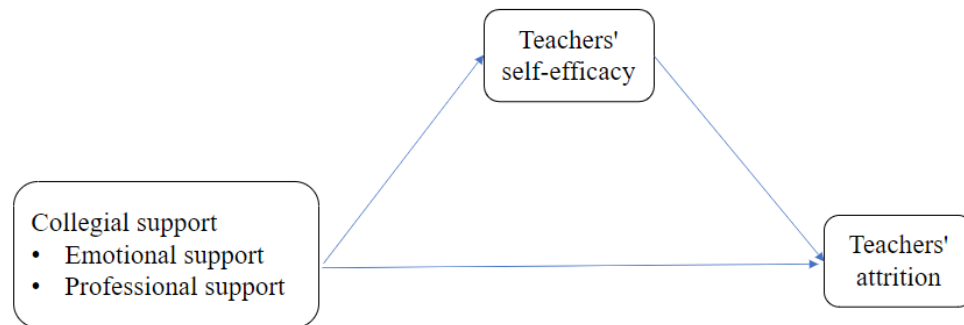
Novice SCTs' and FCTs' Attrition and Collegial Support

Although teacher shortage is a worldwide problem, teachers' attrition rates vary by school and country (Bauer et al., 2021). Teachers' attrition refers to teachers leaving the teaching profession before retirement (Helms-Lorenz et al., 2012). In the Netherlands' primary education system, early career teachers' attrition rate is around 15% after one year (den Brok et al., 2017). There is a severe shortage of qualified teachers in primary, secondary and special education

schools in the UK (Pearce, 2023). In the UK, one out of three qualified teachers left teaching positions in the past ten years (Pearce, 2023). In Belgium, compared to other EU areas, there are twice as many teaching vacancies, with around a 20% attrition rate in the first five years (European Commission, 2022).

One reason for novice teachers' high attrition is the uncompetitive salary. According to Wilson's (2021) report, graduates (bachelor or master) who chose other industries have shown faster salary growth after working for several years, compared with their peers who have become teachers (Harrell et al., 2004). Furthermore, in recent years, such an income gap has become greater (Wilson, 2021), which causes a large number of novice teachers to leave teaching (Johnson & Birkeland, 2003). Another pivotal reason is the lack of collegiality. Many studies pointed to a lack of communication and instructional support with colleagues and feeling isolated as vital reasons for novice teachers' dissatisfaction and attrition (Harrell et al., 2004; Jarzabkowski, 2003; Shah, 2012).

For example, a study has found that the relationship between mentors and SCTs is not close (Thomas, Tuytens, Moolenaar, et al., 2019). SCTs tend to not ask for help from their mentors because they are worried that their mentors would think they are not professional, and evaluate them as unqualified (Thomas, Tuytens, Moolenaar, et al., 2019). Worse yet, this study also indicated some SCTs can only get a teaching position where they cannot transfer their experience, which could undermine the motivation of SCTs. Johnson and Birkeland (2003) have found that intrinsic rewards, such as feeling effective on students' engagement, can foster teachers' willingness to stay, even if the salary is not competitive. Therefore, these factors lead to a higher risk of unqualified and failed teaching experience, which may drive novice teachers to leave their teaching careers (Johnson & Birkeland, 2003).

It is worth noting that many governments have launched programs such as alternative certification programs (ACPs) to encourage people to choose the teaching profession. Increasing numbers of SCTs entered the teaching profession (Troesch & Bauer, 2017). However, SCTs quickly left schools as well, which is called the "revolving door" effect (Ingersoll & Strong, 2011). Even though quite a few FCTs and SCTs tend to quit their teaching jobs in their first five years, FCTs show slightly less attrition willingness than SCTs (Elliott et al., 2010; Suell & Piotrowski, 2007).

To retain novice teachers in their current schools, the government and schools provide many supports, such as the formal induction program to help novice teachers adapt to teaching careers (Smith & Ingersoll, 2004). Among the many forms of support that have been implemented to help teachers' induction, recent literature agrees that collegial support is one of the most effective support (Baker-Doyle, 2012; Casely-Hayford et al., 2022; Symeonidis et al., 2023).

Collegial Support, Social Network, and Social Capital

Collegial support leads to professional resources and a sense of recognition, which is valued by novice teachers and plays a pivotal role in retention (Auletto, 2021). Collegial support includes professional support (e.g., teaching skills) and emotional support (e.g., feelings of care, love, trust, and compassion) (House, 1981). For instance, by talking to other colleagues, they can share concerns and teaching challenges and thus reduce their feeling of frustration and isolation (Buchanan et al., 2013; Lipscomb et al., 2022).

Research has shown that SCTs receive less collegial support than FCTs. There are two reasons. First, they are sometimes perceived as "not real" teachers by their first career colleagues and consequently are isolated in the school's social fabric (Coppe et al., 2023). Second, SCTs

usually seem to have more life experience and skills because of their age. Therefore, it is often assumed that their work skills can be directly transferred to teaching careers, thus SCTs are easily neglected to get support during their induction period (Troesch & Bauer, 2017). For instance, SCTs are often thought to be good at communicating with students, but the truth is that SCTs rarely have experience working with students (Tigchelaar et al., 2008).

To help novice teachers, especially SCTs to acquire more collegial support, it is necessary to know more details about collegial support. Literature suggested understanding collegial support through the social network perspective because it takes the relationship between individuals as the unit of analysis (Thomas et al., 2019). The advice and information that teachers gain from collegial support can be described as teachers' individual social capital (Spillane et al., 2012). The degree of centrality, or the position that the teacher in the social network decides how much social capital they can obtain (Baker-Doyle, 2015). Social networks can facilitate teachers to find teaching resources, social support, and collaboration (Baker-Doyle, 2015).

For instance, colleagues' feedback and critical dialogue can boost early career teachers' reflection (Patrick et al., 2010) and thus encourage them to be more creative. Novice teachers can share their teaching challenges with peers, thus reducing the feeling of being alone when facing difficulties (Shah, 2012). Furthermore, informal interactions also allow teachers to build trust in colleagues and feel recognized and accepted by others, subsequently promoting collaboration between teachers and curriculum development (Moolenaar et al., 2011). Therefore, the dense social network can benefit teachers' lower attrition (Skaalvik & Skaalvik, 2011).

Emotional support and professional support are two major and vital aspects of collegial support (Thomas, Tuytens, Moolenaar, et al., 2019). A heavy emphasis that has been placed on

teachers' professional support tends to leave aside the consideration of teachers' emotional support (Schutz & Zembylas, 2009; Uitto et al., 2015). In other words, teachers' emotional support is currently still underrepresented. Furthermore, although professional support research is a big body, studies that utilize the perspective of social networks are still less and deserve a more comprehensive understanding (Porter et al., 2019). Hence, analyzing professional and emotional support based on a social network perspective is valuable for providing more targeted support to SCTs and FCTs.

Emotional Support

As Löfgren and Karlsson (2016) have clarified, emotional support can be described as an important and insufficient element of collegiality which contains listening to other teachers' feelings, sharing teaching values, and inclusive and trustable dialogue. Collegial emotional support can be a good buffer for novice teachers' transition, by exchanging similar frustrated feelings and sharing pressure (Zonoubi et al., 2017). For instance, collegial support can foster critical dialogue, reflection, and decision-making consensus among teachers and thus boost collective self-efficacy and build a more friendly and trusting school climate (Löfgren & Karlsson, 2016). Moreover, Gamborg and her colleagues (2018) argued that it is mainly because these collaboration and communication opportunities can reduce novice teachers' isolation.

Furthermore, perceiving chronic stress and their efforts not being recognized by parents and principals can be important factors that force beginning teachers to leave a teaching job (Thomas et al., 2019). Likewise, the literature also illustrated teachers' emotional exhaustion is highly related to their job dissatisfaction and burnout (Uitto et al., 2015). Jarzabkowski (2002) has pointed out that emotional support is quite cherished by primary school teachers, particularly novice teachers; The support means important resources for survival in their teaching career.

Jarzabkowski (2003) has also argued that advice shared by experienced teachers helps young teachers gain more reassurance as well as contributes to building a more proactive and welcoming school environment. According to Aldridge and Fraser's (2016) study, a positive school-level environment can benefit teachers' self-efficacy, teaching innovation, and job satisfaction. Moreover, Jarzabkowski (2003) has illustrated that emotional support should be taken more seriously since it is a vital element besides salary that can promote teachers' enthusiasm for their work.

Professional Support

Professional support can be described as an approach that fosters novice teachers to reflect and improve their instructional abilities through a series of interactions with colleagues and mentors such as observation, collaboration, and critical dialogue (Postholm, 2012). Based on Bandura's (1977) social cognitive theory, teachers' vicarious experiences can be fostered through their daily interactions with colleagues. For instance, after observing experienced colleagues' courses, novice teachers can learn and critically reflect on their own instructional skills, and thus feel confident when they stand on the podium (Zonoubi et al., 2017). Furthermore, their colleagues with rich teaching experiences can give novice teachers professional advice in order to improve their didactical skills, and help novice teachers timely modify their errors as well (Postholm, 2012; Zonoubi et al., 2017). In turn, novice teachers can also bring fresh perspectives to experienced teachers. In a study carried out by Caspersen and Raaen (2014), they found that joint working is attributable to novice and experienced teachers' self-efficacy and novice teachers' certainty. Moreover, Pogodzinski (2014) has pointed out that the accessibility of resources plays a pivotal role in mediating teachers' stress, efficiency, self-efficacy, the perception of work and workplace environment, and career decisions.

By contrast, lack of professional support, in particular for beginning teachers, seems to be the pivotal inhibition factor that influences their intrinsic motivation, sense of belongingness, job attitudes, and job satisfaction (Thomas et al., 2019). Compared to other professions, on average, early career teachers are more likely to receive less professional support from their mentors and there are limited channels for them to communicate their needs (Caspersen & Raaen, 2014). Also, Ingersoll and Strong (2011) have argued that the quality of support is very uneven. For instance, as Jarzabkowski (2003) argued, schools in remote areas have much less access to outside mentors' guidance because of their geographical limitations.

Self-Efficacy and Collegial Support in the School Context

Noteworthy, the literature reported that self-efficacy is expected as a vital factor related to collegial support and attrition (Brouwers et al., 2001; Korte, 2017; Shen, 2009). Teachers' self-efficacy has been a trendy subject among researchers for a long time since it is a key factor that impacts teachers' adaptability (Dong et al., 2020), job satisfaction, and long-term job commitment (Zee & Koomen, 2016). Consequently, teachers' self-efficacy has an indirect influence on students' engagement and achievement, intrinsic and extrinsic motivation, and self-regulation behaviors (Zee & Koomen, 2016). Self-efficacy is the belief that people trust themselves in handling something (Helms-Lorenz et al., 2012). Teachers' self-efficacy refers to the belief/perception teachers have of their ability to successfully manage their teaching professional role (Mintz, 2019; Skaalvik & Skaalvik, 2016).

Collegial support is the vital factor that impacts teachers' self-efficacy (Löfgren & Karlsson, 2016; Shah, 2012) because they provide teachers with emotional support (Beatty, 2000) and teaching resources that help teachers complete successful teaching (Van Uden et al., 2014). As Johnson and Birkeland (2003) illustrated, collegial support can be vital assistance for

teachers to pursue a successful teaching career. In their research, they have elaborated that teachers' perception that they are helpful and effective for students is the most important factor which retains them in their current teaching positions. Vice versa, a lack of professional support and emotional issues such as feeling isolated can negatively influence teachers' self-efficacy (Johnson & Birkeland, 2003; Tschannen-Moran & Hoy, 2007), in particular, when they have to face disparity between theory and practice alone (Hoy, 2005).

In a study conducted by Thomas and her colleagues (2019), they examined teacher self-efficacy based on social networks, which was found that collegial support has a positive influence on teachers' self-efficacy. Yet, they also found that professional support alone is not significant enough to change beginning teachers' self-efficacy. Hence, professional support and emotional support should be considered separately in examining the relationship with attrition, which would be meaningful for a deeper understanding of to what extent SCTs and FCTs need support. Furthermore, they also found that emotional support contributed to early career teachers' sense of belonging to the school team, which echoed another research. That is, as Bjorklund and his colleagues (2020) reported, a sense of belonging and a supportive network have a positive effect on novice teachers' self-efficacy. In addition, the literature also reported that teachers' self-efficacy can be one of the most effective and indirect elements in developing students' engagement in learning (Van Uden et al., 2014).

In view of previous research, teachers with a high level of self-efficacy are more likely to stay in their profession (Skaalvik & Skaalvik, 2016). Self-efficacy can help reduce the stress of challenges in teaching (Bjorklund et al., 2020) and better help them overcome the discomfort of the first years of the profession (Demirtas, 2018; Schunk, 1995). Siciliano (2016) and Skaalvik and Skaalvik (2007) have shed light on the fact that teachers' self-efficacy has great significance

for the quality of their teaching and reducing burnout. Teachers with high self-efficacy have a greater willingness to persist in teaching, are more active in the classroom, and can give quality feedback to their students (Skaalvik & Skaalvik, 2016; Zee & Koomen, 2016).

In addition, previous research has found that teachers' attrition can be associated with students' socioeconomic status (SES) and their years of teaching experience (Anderson, 2018; Hoy & Spero, 2005). Compared with FCTs, SCTs' attrition tends to be lower in schools with low students' SES, because their various backgrounds allow them to get along well with students with low SES well (Anderson, 2018). Also, years of teaching experience is found to have the an association with teachers' self-efficacy, teachers' stress and willingness to stay in the teaching profession (Hoy & Spero, 2005). Considering this study is embedded in the school context, clarifying students' SES and teachers' years of teaching experience would make this research more comprehensive.

This Study

This study aims to contribute to the body of knowledge on novice SCTs' attrition by (1) evaluating the relationship among professional support, emotional support, SCTs' self-efficacy, SCTs' attrition, and their students' SES and their years of teaching experience and (2) comparing these relationships between novice SCTs and FCTs. This study pursues these objectives by investigating these four research questions:

RQ1: To what extent does professional support operationalized as social capital, predicate SCTs' and FCTs' attrition?

RQ2: To what extent does emotional support, operationalized as social capital, predicate SCTs' and FCTs' attrition?

RQ3: To what extent does self-efficacy mediate the above mentioned association in the

case of SCTs?

RQ4: To what extent does self-efficacy mediate the above mentioned association in the case of FCTs?

Method

Participants

There were 1510 secondary school teachers in French-speaking Belgium who participated in this survey, including 533 SCTs and 977 FCTs. Teachers responded anonymously. They gave their informed consent form agreeing to their answers being used for scientific research. Participant teachers were recruited through social network platforms and contacts with principals. Approval was obtained from the ethics committee of the Faculty of Behavioural and Social Sciences.

Survey Design and Instrument

Participating teachers filled in the survey via the Qualtrics platform. At the beginning of the survey, participants received the information that we were only interested in participants ranging from 1 to 7 years of teaching experience. It took around 15 minutes to complete. The survey included the following five parts.

Demographic information (without personal identification) and professional information (Levitt et al., 2018). They included teachers' gender, teachers' type (SCTs or FCTs), school type (primary or secondary schools), teachers' years of teaching, number of students and students' SES.

Interaction questionnaire. It included the frequency and quality of professional support and emotional support. The questionnaire was from a previously validated scale (Thomas et al., 2019). Firstly, through a name generator, respondents named up to 15 colleagues who gave

her/him professional or emotional support. Then, they responded to items related to the frequency and quality of professional and emotional support.

Attrition scale. This scale was a validated scale from previous studies (Becker & Billings, 1993; McInerney et al., 2018). It included six items. Four of the questions were about leaving the teaching profession and two were about changing schools.

Teachers' self-efficacy scale. This scale was from a validated scale (Coppe et al., 2020). It was composed of three aspects: teachers' instructional self-efficacy, teachers' class management self-efficacy, and students' engagement self-efficacy (Coppe et al., 2020).

Variables

The endogenous variable is the social issue that the study intends to explore (Petersen, 2001). In this study, the endogenous variables are teachers' attrition and teachers' self-efficacy. Literature has shown that self-efficacy is affected by collegial support (Pogodzinski, 2014). Hence, self-efficacy is operationalized as an endogenous variable. A similar previous study (Iis & Yunus, 2016) grouped it as an endogenous variable as well. In this survey, teachers' attrition is operationalized as the intention to quit. Because it is very costly and challenging to collect data on real attrition (Billingsley, 2004), the intention to quit is a good proxy measure of attrition that has been adopted by experts (Ainley & Carstens, 2018).

The Cronbach's alpha coefficients of the attrition scale and self-efficacy scale were .95 and .83 respectively, which indicated good reliability. To compute the variable of attrition, I calculated the mean between three items related to attrition. The same method was used to calculate self-efficacy. The example question of attrition was: "I am thinking of leaving the teaching profession." Subjects responded on a scale from 5 ("strongly agree") to 1 ("strongly disagree"). One of the self-efficacy items was: " I know how to motivate students who show low

interest in school work." Participants responded on a scale from 5 ("strongly agree") to 1 ("strongly disagree").

Exogenous variables are professional support and emotional support. The exogenous variables are those used to explain social issues (Petersen, 2001). Inspired by previous research (Ingersoll & Strong, 2011; Joiner & Edwards, 2008), this study combined the quality and frequency of collegial support, because both of these factors have been shown to have a significant impact on teacher attrition (Thomas, Tuytens, Moolenaar, et al., 2019). According to previous literature (Thomas, Tuytens, Moolenaar, et al., 2019), professional support and emotional support are operationalized as teachers' social capital in this study. I took professional support as an example to explain how to compute the variable (Thomas et al., 2019). Firstly, for each respondent, I computed the mean scores between the quality of support and the frequency of support provided by each colleague the respondent mentioned. Secondly, I summed these means between all colleagues mentioned as providing support for each participant. The same method was used to calculate the social capital of emotional support. Example questions were as follows. "How useful do you perceive the professional support from this colleague?". Participants responded from 5 ("always useful") to 1 ("never useful"). Another example was: "How frequently do you receive emotional support from this colleague?". Participants responded from 5 ("daily") to 1 ("once every three months").

Control variables were students' SES and teachers' years of teaching experience. Among all the control variables, students' SES and teachers' years of teaching were found to be the most important factors that impacted teachers' attrition and self-efficacy, respectively (Ingersoll & May, 2012; Mintz, 2019). Hence, it was essential to include them in this study. Also, they were the factors that could be used to explain teachers' attrition and thus they should be

operationalized as exogenous variables (Petersen, 2001). The item of students' SES (OECD, 2022) was: "I think my school mainly welcomes students from the following socio-economic backgrounds". Teachers responded from 5 "(very advantaged)" to 1 "(very disadvantaged)". The item of years of teaching (Thomas, Tuytens, Moolenaar, et al., 2019) was "How many years have you been a teacher?" Teachers responded from "0" to "7".

The multigroup analysis factor was teachers' type (SCTs and FCTs). SCTs' and FCTs' paths of attrition were compared so that a more fine-grained SCTs situation could be unveiled and a more customized intervention could be designed based on their different needs.

Analysis

This study used path analysis. It was widely used in examining the relationships between variables in non-experimental research (Streiner, 2005). Path analysis allowed several variables to be tested simultaneously (Streiner, 2005), which made the result more accurate. This study sample was 1341, which met the minimum sample size requirement for pathway analysis which was greater than 200 (Bhakar, 2015). Secondly, path analysis can explain well the relationships between several factors in this study (Lani, 2021). The analysis tool was Jamovi. It was a free and open statistical tool (The jamovi project, 2022) to analyze data in social sciences.

This study tested the goodness fit of the model, with common indices for the path model. Chi-square and degree of freedom were used to calculate the p value. If the p value was higher than .05, it indicated a good model fit (Moran, 2021). RMSEA (root mean square error of approximation) below .01 indicated excellent model fit, while above .08 indicated mediocre fit (MacCallum et al., 1996). CFI (comparative fit index) higher than .95 indicated a good fit (Xia & Yang, 2018). SRMR (standardized root mean square residual) smaller than .08 indicated a good fit (Hu & Bentler, 1999). Missing data have been handled by Jamovi default missing value

system for path analysis which was listwise deletion (Jonathon, 2021).

According to the literature on teachers' self-efficacy, and collegial support, the hypothesized full path model was as the following descriptions. Professional support and emotional support were hypothesized to affect teachers' attrition directly and also indirectly by affecting teachers' self-efficacy. Students' SES was hypothesized to have a direct influence on teachers' attrition. And teachers' years of teaching experience were hypothesized to play a direct and important role in teachers' self-efficacy. SCTs' and FCTs' path coefficients were compared to know which path was significantly associated with teachers' attrition.

Figure 2

Hypothetical Model of Relationships among Emotional Support, Professional Support, Years of Teaching, Students' SES, Self-Efficacy and Teachers' Intention to Quit.
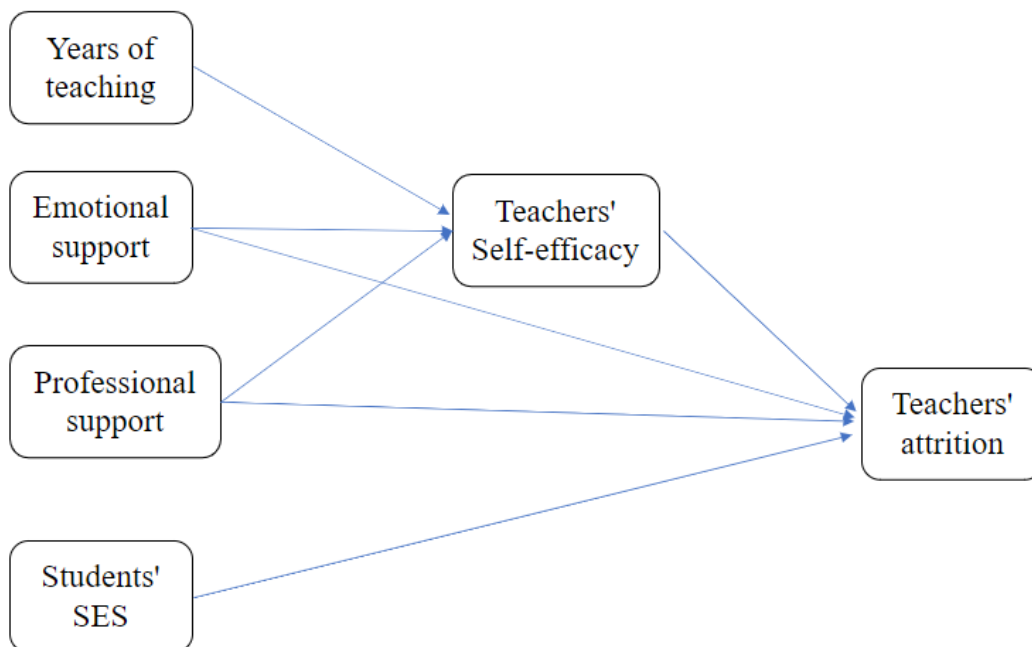
Note. Single-headed arrows represent predictive relationships.

Results

This section is divided into three parts. Firstly, the missing data, descriptive statistics and

goodness of model fit will be discussed. Secondly, through Figure 3 and Figure 4, I will discuss

direct associations between variables. Thirdly, via statistics in Table 1, I will discuss indirect

associations between variables.

Missing Data, Descriptive Statistics and Goodness of Model Fit

The valid sample was 1341. A small amount of missing data was present, including 56

SCTs and 113 FCTs, 10.5% and 11.6% of the total number of SCTs and FCTs, respectively for

whom at least one piece of information was missing on one of the variables of interest.

The mean scores and standard deviation of SCTs' self-efficacy and intention to quit were

$M = 4.06$, $SD = .60$, $M = 2.08$, $SD = 1.28$ respectively. The mean scores and standard deviation of

FCTs' self-efficacy and attrition were $M = 4.19$, $SD = .53$, $M = 2.04$, $SD = 1.18$ respectively.

These indicated that, on average, SCTs' self-efficacy was slightly lower than FCTs and SCTs'

intention to quit was slightly higher than FCTs. Detailed descriptive statistics could be found in

Appendix A.

I selected several frequently reported indicators in SEM (Structural Equation Modeling,

i.e., path analysis) model fit (Kenny, 2020). Chi-square $\chi2$ $(4) = 28.7$, $p < .001$. The p value was

less than .05, which meant that the null hypothesis was rejected and the differences between

observed and expected proportions are significant (Frost, 2022). Considering the valid sample

was 1341, more than 400, the Chi Square was usually statistically significant (Kenny, 2020).

RMSEA is .096, more than .08, which indicated a mediocre fit. One important reason was the df

(the degree of freedom) was a quite small value of 4, which could lead to a large RMSEA value

(Kenny, 2020). Subsequently, because RMSEA was less than .16, the CFI could be small (.88).

This meant CFI was not a good indicator for our model. However, SRMR was .026, less than .08, which indicated a good fit (Hu & Bentler, 1999). Detailed goodness of fit indices for the models tested could be found in Appendix B.

Path Analysis Results

The path analysis outcomes were obtained by automatic calculation with the SEM software package in Jamovi. As the path diagrams output by Jamovi were not labeled with a *p* value, I have added the significant *p* values manually. I splitted the path analysis result diagram into SCTs' Figure 1 and FCTs' Figure 2.

Direct Paths Results

The direct paths indicated the following. Years of teaching experience had a significant effect on SCTs' and FCTs' self-efficacy, ($\beta = .24$, $p < .001$, $\beta = .23$, $p < .001$, respectively). It indicated that the more teaching experience they have, the higher their self-efficacy gets. Emotional support had significant associations with SCTs' and FCTs' self-efficacy ($\beta = .10$, $p = .041$, $\beta = .10$, $p = .013$, respectively), which indicated with more emotional support, SCTs' and FCTs' self-efficacy growing higher. Emotional support did not have significant associations with SCTs' or FCTs' attrition ($\beta = .03$, $p = .609$, $\beta = -.03$, $p = .478$, respectively).

Professional support had a significant and positive association with SCTs' and FCTs' self-efficacy ($\beta = .16$, $p = .001$, $\beta = .10$, $p = .010$, respectively). It indicated that professional support could boost SCTs' and FCTs' self-efficacy. Professional support was also found to have a significant association with SCTs' and FCTs' attrition ($\beta = -.24$, $p < .001$, $\beta = -.09$, $p = .028$, respectively). It indicated that professional support could decrease SCTs' and FCTs' attrition.

Self-efficacy had a significant association with FCTs' attrition ($\beta = -.16$, $p < .001$) which indicated that with stronger self-efficacy, there was lower FCTs' attrition. However, there was no

significant relationship between self-efficacy and SCTs' attrition ($\beta = -.08, p = .084$). Similarly,

students' SES had no significant association with SCTs' or FCTs' attrition ($\beta = -.03, p = .44, \beta = -.04, p = .265$, respectively).
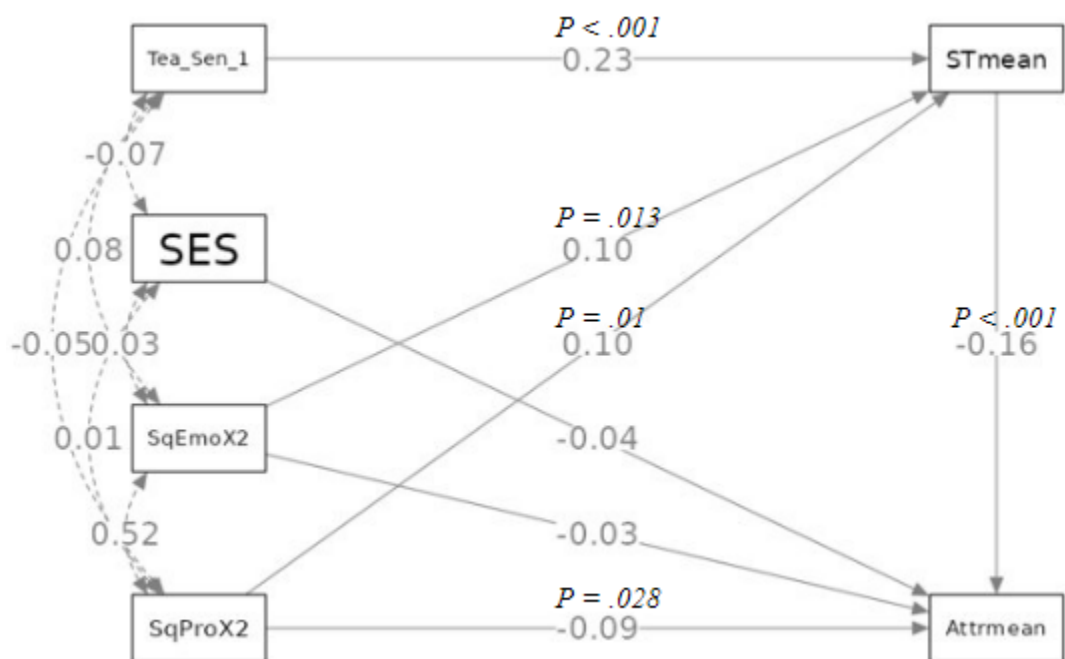
Figure 3

SCTs' Path Diagram
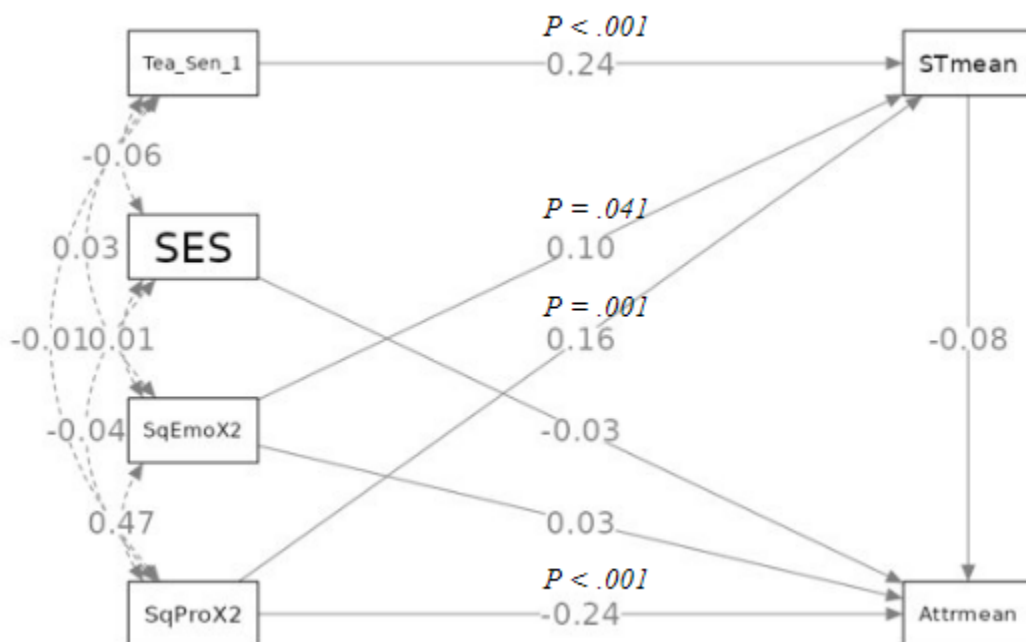
Note. Double-headed arrows represent correlations. Single-headed arrows represent predictive relationships.

Tea_Sen_1 represents years of teaching experience. SES means students' socioeconomic status. SqEmoX2

represents emotional support. SqProX2 means professional support. STmean represents self-efficacy. Attrmean

represents attrition. Only significant *p* values for regression paths are represented.

Figure 4

FCTs' Path Diagram

Note. Double-headed arrows represent correlations. Single-headed arrows represent predictive relationships. Tea_Sen_1 represents years of teaching experience. SES means students' socioeconomic status. SqEmoX2 represents emotional support. SqProX2 means professional support. STmean represents self-efficacy. Attrmean represents attrition. Only significant *p* values for regression paths are represented.

Indirect Paths Results

As Table 1 has illustrated, the indirect path from SCTs' professional support to their self-efficacy and to attrition demonstrated a not significant relationship *(β = -.01, p = .13)*. However, the direct path indicated that professional support had a significant association with SCTs' attrition. The path from SCTs' emotional support to self-efficacy and to attrition showed a not significant association among these three variables *(β = -.01, p = .19)*. The direct path from emotional support to SCTs' attrition was not significant. The path from SCTs' years of teaching experience to SCTs' self-efficacy and to attrition did not illustrate a significant relationship *(β =*

-.02, *p = .098*). Interestingly, these indicated that SCTs' attrition was directly and most associated with professional support. Emotional support was not significantly associated with SCTs' attrition. Years of teaching experience had no significant relationship with SCTs' attrition when mediated by self-efficacy.

In contrast, indirect paths of FCTs have shown that professional support, emotional support, and years of teaching were all found to have significantly associated with FCTs' attrition, mediated by self-efficacy (β = *-.02, p =.022, β = -.02, p = .028, β =-.04, p < .001,* respectively). Combining with FCTs' direct paths, the following findings can be conducted. Emotional support was most associated with FCTs' attrition when mediated by self-efficacy. Professional support was partially associated with FCTs' attrition when mediated by self-efficacy. The years of teaching experience was most associated with FCTs' attrition when mediated by self-efficacy.

Table 1

Results of SCTs' and FCTs' Path Analysis

	Description	Estimate	SE	β	*p*
SCTs	Professional support $\Rightarrow$ Attrition	-0.10	0.02	-0.24	< .001
	Professional support $\Rightarrow$ Self-Efficacy	0.03	0.01	0.16	0.001
	Professional support $\Rightarrow$ Self-Efficacy $\Rightarrow$ Attrition	-0.01	0.00	-0.01	0.128
	Emotional support $\Rightarrow$ Attrition	0.01	0.02	0.03	0.609
	Emotional support $\Rightarrow$ Self-Efficacy	0.03	0.01	0.10	0.041

	Description	Estimate	SE	β	p
	Emotional support $\Rightarrow$ Self-Efficacy $\Rightarrow$ Attrition	-0.00	0.00	-0.01	0.186
	Self-Efficacy $\Rightarrow$ Attrition	-0.17	0.10	-0.08	0.084
	SES $\Rightarrow$ Attrition	-0.03	0.04	-0.03	0.442
	Years of teaching $\Rightarrow$ Self-Efficacy	0.07	0.01	0.24	< .001
	Years of teaching experience $\Rightarrow$ Self-Efficacy $\Rightarrow$ Attrition	-0.01	0.01	-0.02	0.098
FCTs	Professional support $\Rightarrow$ Attrition	-0.03	0.01	-0.09	0.028
	Professional support $\Rightarrow$ Self-Efficacy	0.02	0.01	0.10	0.010
	Professional support $\Rightarrow$ Self-Efficacy $\Rightarrow$ Attrition	-0.01	0.00	-0.02	0.022
	Emotional support $\Rightarrow$ Attrition	-0.01	0.01	-0.03	0.478
	Emotional support $\Rightarrow$ Self-Efficacy	0.01	0.01	0.10	0.013
	Emotional support $\Rightarrow$ Self-Efficacy $\Rightarrow$ Attrition	-0.01	0.00	-0.02	0.028
	Self-Efficacy $\Rightarrow$ Attrition	-0.36	0.08	-0.16	< .001
	SES $\Rightarrow$ Attrition	-0.03	0.03	-0.04	0.265
	Years of teaching experience $\Rightarrow$ Self-Efficacy	0.05	0.01	0.23	< .001
	Years of teaching experience $\Rightarrow$ Self-efficacy $\Rightarrow$ Attrition	-0.02	0.01	-0.04	< .001

Note. SCTs represent second career teachers and FCTs represent first career teachers. Description subscripts refer to groups, with 1= SCTs, and 2= FCTs. IE represents the path. SqProX2 represents professional support. STmean represents self-efficacy. Attrimean represents attrition. SqEmoX2 represents emotional support. Tea_Sen_1 represents years of teaching.

Discussion

This section is divided into three parts. Firstly, the relationships between professional support, self-efficacy and SCTs' and FCTs' attrition will be discussed. Secondly, the relationships between emotional support, self-efficacy and SCTs' and FCTs' attrition will be discussed. Finally, the role of students' SES and years of teaching experience will be discussed.

Professional Support, Self-Efficacy and Attrition

Professional support was found to be most directly associated with SCTs' attrition. This is consistent with previous literature (Coppe et al., 2022; 2023). Professional support provided SCTs with many teaching resources, which can help them, such as commanding essential teaching skills and enhancing their positive job attitudes (Thomas et al., 2019). With professional support increasing, self-efficacy improved. The growing self-efficacy was not associated with lower SCTs' attrition. This is a very interesting finding. One possible explanation could be that our scale investigated classroom-related self-efficacy. However, other aspects, such as organization related self-efficacy may play a vital role in mediating SCTs' attrition (Coppe et al., 2020). Indeed, a study conducted by Friedman and Kass (2002) has emphasized that organization related self-efficacy is pivotal for teaching careers. This finding also illustrated that adapting to school life is pretty challenging for novice SCTs, even harder than learning to teach. It is understandable that most SCTs have been away from school life for a long time (Chambers, 2002).

Professional support was partially associated with FCTs' attrition when mediated by self-efficacy. This is aligned with previous studies (Brouwers et al., 2001; Hatlevik & Hatlevik, 2018). It can be explained that FCTs are new graduates from university and have not had many successful experiences (Hoy, 2005). Hence, with professional support, their competencies in

teaching can develop their confidence and thus decrease attrition in teaching professions (Papatraianou & Cornu, 2014).

Emotional Support, Self-Efficacy and Attrition

Emotional support was significantly associated with SCTs' and FCTs' self-efficacy. This is consistent with previous research (Van Rooij et al., 2019). It can be explained that sharing teachers' feelings and emotional management tips can help novice teachers reduce their feelings of isolation and stress and improve emotional well-being (Duran et al., 2022; Papatraianou & Cornu, 2014). These develop a positive psychological state and confidence and thus boost novice teachers' self-efficacy and willingness to stay in teaching jobs (Van Rooij et al., 2019)

However, emotional support was not significantly associated with SCTs' attrition. One possible reason could be that emotional support from colleagues is not the major source of SCTs' emotional support. Other sources of emotional support, such as social networks of previous colleagues and family can provide vital emotional support (Kahn, 2015).

In addition, the literature showed that most SCTs choose to become teachers after careful consideration (Chambers, 2002; Papatraianou & Cornu, 2014). They have a clear belief in service to the community (Papatraianou & Cornu, 2014). However, although FCTs are systematically trained by teacher education, their belief in teaching, such as a career in teaching suits them (Gonzales Rodriguez & Sjostrom, 1998) could be shaken because of the gap between reality and their expectations. Hence, emotional support (e.g., teaching values and beliefs) plays a pivotal role in FCTs' early career transition.

Students' SES, Years of Teaching and Attrition

This study reveals that SES was not a significant predictor of either SCTs' or FCTs' attrition, which is inconsistent with previous findings (Ingersoll & May, 2012; Schmitt &

deCourcy, 2022). It can be explained by the fact that the students' SES of this study's

participants was diverse and not concentrated in very advantaged or disadvantaged schools (see

Appendix C). The sample in previous studies that concluded that novice teacher attrition was

highly related to students' SES was mostly from minority and rural areas (Brill & McCartney,

2008; Jarzabkowski, 2003). In other words, these studies' samples were very concentrated in low

SES schools.

As expected, years of teaching experience were found to be a significant predictor for

both SCTs' and FCTs' self-efficacy. The results are in line with previous studies (Harrell et al.,

2004; Klassen & Chiu, 2010; Van Uden et al., 2014). It could be explained through Bandura's

(1977) self-efficacy theory. The teaching experience is getting richer, and self-efficacy in

teaching is constantly enhanced (Hoy, 2005; Tschannen-Moran & Hoy, 2007; Van Uden et al.,

2014). In addition, another potential reason is that teachers who have not gained enough

successful teaching experience choose to leave, and conversely, those who have accumulated

enough mastery experience stay in their positions (Hong, 2012).

Implications and Future Research

Implications

I would like to recommend some advice for both policymakers and novice SCTs and

FCTs. First of all, in light of what this study and previous research have revealed, both SCTs and

FCTs need adequate professional support and emotional support (Haggard et al., 2006; Madfes,

1990) to boost them to integrate teaching careers with less pain and discomfort. Furthermore, it

would be effective to strengthen novice teachers' self-efficacy with the combination of

professional support and emotional support. The reason is that earlier research (Curby et al.,

2013) and this study illustrated there is a strong reciprocal relationship between professional

support and emotional support.

Another piece of advice is that providing more professional support to SCTs, such as building a professional development community, should be more seriously taken into the school board's consideration. This is not only creating more opportunities and spaces for exchanging instructional opinions but also building a window for communicating emotional feelings and advice. Noticeably, technical and practical skills should be more valued, as Caspersen and Raaen (2014) have pointed out that these factors play vital roles in an early career teaching survival in dealing with teaching issues. Furthermore, utilizing and integrating the support received and encouraging novice teachers to engage in professional seminars should also be emphasized, when schools carry out meetings and professional development programs (Caspersen & Raaen, 2014). Furthermore, this study found course related self-efficacy was not highly associated with SCTs' attrition. Hence, schools should be more supportive of SCTs' needs outside the classroom (Friedman & Kass, 2002). For example, knowing how the school's resources were allocated and school routines could be important for SCTs' integration into the school and thus increase confidence in school life.

In addition, this study has illustrated that emotional support was highly associated with FCTs' self-efficacy and attrition. It is meaningful to provide more emotional support to novice FCTs. Gonzales Rodriguez and Sjostrom (1998) have pointed out that young traditional teachers' belief in teaching decreased in their first week of transition. Meanwhile, isolation (Johnson & Birkeland, 2003), a major factor that hinders teachers' innovative teaching (McLaughlin, 1992) and lifelong professional development, could also be dispelled by providing emotional support. In other words, salary is not the only effective solution to retain novice teachers (Schmitt & deCourcy, 2022). Reciprocal help school climate (Madfes, 1989) could contribute to teachers'

satisfaction a lot and thus keep qualified teachers stay in the teaching job. Furthermore, this study found a significant association between years of teaching experience and self-efficacy. It indicated that collaboration between senior and novice teachers should be strengthened. This is because experienced teachers can provide guidance to novice teachers and their high self-efficacy can facilitate a more harmonious and inclusive collaboration (Caprara et al., 2003).

Limitations and Future Research

There are some limitations in this study that should be elaborated on. Firstly, the content of self-efficacy is limited. Future research can take self-efficacy related to other aspects, such as organization into consideration and not be limited to course related self-efficacy when examining the relationship between SCTs' self-efficacy and attrition.

Secondly, it is recommended to investigate the extent to which SCTs' and FCTs' original motivation (Coppe et al., 2021) contributes to their social capital and self-efficacy. This information could contribute to portraying specific teachers' profiles and thus create a more personalized intervention plan.

Thirdly, a mixed-methods study, that is combining quantitative and qualitative methods, is recommended for future research. For instance, in this study, emotional support did not show a statistically significant association with SCTs' attrition. An interview will help uncover the story (Thomas et al., 2019) behind the non-significant data, such as the main sources of emotional support for SCTs.

Fourth, taking into account local teacher welfare policies, minority students at each school, etc., will make future studies more informative, since self-efficacy is the reciprocal product of interaction between teachers and the environment (Bandura, 1977). In addition, it will be more valuable to take collective self-efficacy into account. As Goddard and Goddard's (2001)

research has shown, collective self-efficacy is also a strong predictor of teachers' individual self-efficacy levels.

Fifth, taking subjects into teacher shortage consideration will be more customized and make sense for future study. One reason is specific subject teachers ask for different support (Ingersoll & May, 2012). For example, science teachers put salary first, but mathematics teachers treat classroom autonomy as their priority for attrition. Another reason is different schools have special needs for some subjects' teachers. For example, in the USA (Schmitt & deCourcy, 2022) and the UK (Pearce, 2023) it is hard to find science and math teachers.

Furthermore, longitudinal research to track different career stages of teachers' self-efficacy is meaningful for future research to customize interventions for different stages of teachers. One reason is that the impact of the intervention on self-efficacy usually shows several years later (Duran et al., 2022). Another reason is that the form of the attrition curve of in-service teachers is U shape, which means teachers show high attrition partition in their early career and their latter teaching career (Ingersoll & May, 2012).

Conclusion

In light of the worldwide teacher shortage, SCTs are seen as a pivotal solution to address the shortage issue. Nonetheless, high attrition among early career teachers has forced education experts to explore the factors that can retain teachers. Therefore, this research explored the predictive relationships among SCTs' and FCTs' professional support, emotional support, self-efficacy, years of teaching experience, their students' SES, and attrition. The results presented in this study have highlighted the following. Professional support was directly and mostly associated with SCTs' attrtion. The surprising thing was course related self-efficacy and emotional support had no significant association with SCTs' attrition. It indicated that

self-efficacy related to other aspects and other sources of emotional support played key roles in SCTs' attrition. Another surprise is that emotional support was entirely associated with FCTs' attrition through the mediator self-efficacy. Consistent with previous literature, professional support was partially associated with FCTs' attrition, through mediator self-efficacy. And years of teaching were highly associated with SCTs' and FCTs' attrition. SES was not significantly associated with SCTs' and FCTs' attrition. Hence, providing SCTs with more help outside the classroom would assist SCTs in adapting better to school life. Providing more emotional support for FCTs is beneficial in improving their self-efficacy and reducing attrition.

References

Anderson, M. (2018). Evaluating the self-efficacy of second career teachers and its possible effects on students in selected low socioeconomic status public high schools in South Western Pennsylvania (Doctoral dissertation, Point Park University).

Azoulay, A. (2022, October 5). World Teachers' Day: UNESCO sounds the alarm on the global teacher shortage crisis | UNESCO. Www.unesco.org. https://www.unesco.org/en/articles/world-teachers-day-unesco-sounds-alarm-global-teacher-shortage-crisis

American Psychological Association. (2023). APA Dictionary of Psychology. https://dictionary.apa.org/total-effect

Ainley, J., & Carstens, R. (2018). Teaching and learning international survey (TALIS) 2018 conceptual framework.

Aldridge, J. M., & Fraser, B. J. (2016). Teachers' views of their school climate and its relationship with teacher self-efficacy and job satisfaction. *Learning Environments Research*, *19*(2), 291–307. https://doi.org/10.1007/s10984-015-9198-x

Auletto, A. (2021). Making sense of early-career teacher support, satisfaction, and commitment. *Teaching and Teacher Education*, *102*, 103321. https://doi.org/10.1016/j.tate.2021.103321

Becker, T. E., & Billings, R. S. (1993). Profiles of commitment: An empirical test. Journal of Organizational Behavior, 14(2), 177–190.

Billingsley, B. S. (2004). Special Education Teacher Retention and Attrition. Journal of

Special Education, 38(1), 39–55.

https://doi.org/10.1177/00224669040380010401https://doi.org/10.1002/job.40301

40207

Baeten, M., & Meeus, W. (2016). Training Second-Career Teachers: A Different Student

Profile, A Different Training Approach? *Educational Process: International*

Journal, *5*(3), 173–201. https://doi.org/10.12973/edupij.2016.53.1

Baker-Doyle, K. J. (2012). First-Year Teachers' Support Networks: Intentional

Professional Networks and Diverse Professional Allies. *The New Educator*, *8*(1),

65–85. https://doi.org/10.1080/1547688x.2012.641870

Baker-Doyle, K. J. (2015). No Teacher Is an Island: How Social Networks Shape Teacher

Quality. In *International perspectives on education and society* (pp. 367–383).

https://doi.org/10.1108/s1479-367920140000027005

Baker-Doyle, K. J., & Yoon, S. A. (2020). The social side of teacher education:

Implications of social network research for the design of professional

development. *International Journal of Educational Research*, *101*, 101563.

https://doi.org/10.1016/j.ijer.2020.101563

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change.

Psychological Review, *84*(2), 191–215.

https://doi.org/10.1037/0033-295x.84.2.191

Bauer, C. C., Trösch, L. M., & Aksoy, D. (2021). "So I had to give it up": The role of

social support for career persistence or attrition in a qualitative sample of second

career teachers. *Schweizerische Zeitschrift Für Bildungswissenschaften*, *43*(3),

464–475. https://doi.org/10.24452/sjer.43.3.9

Beatty, B. R. (2000). Teachers leading their own professional growth: self-directed reflection and collaboration and changes in perception of self and work in secondary school teachers. *Journal of In-service Education*, *26*(1), 73–97. https://doi.org/10.1080/13674580000200102

Brill, S., & McCartney, A. (2008). Stopping the Revolving Door: Increasing Teacher Retention. Politics and Policy, 36(5), 750–774. https://doi.org/10.1111/j.1747-1346.2008.00133.x

Bjorklund, P., Daly, A. J., Ambrose, R., & Van Es, E. A. (2020). Connections and Capacity: An Exploration of Preservice Teachers' Sense of Belonging, Social Networks, and Self-Efficacy in Three Teacher Education Programs. *AERA Open*, *6*(1), 233285842090149. https://doi.org/10.1177/2332858420901496

Brok, P. D., Wubbels, T. T., & Van Tartwijk, J. J. (2017). Exploring beginning teachers' attrition in the Netherlands. *Teachers and Teaching*, *23*(8), 881–895. https://doi.org/10.1080/13540602.2017.1360859

Brouwers, A., Evers, W. J. G., & Tomic, W. (2001). Self-Efficacy in Eliciting Social Support and Burnout Among Secondary-School Teachers. *Journal of Applied Social Psychology*, *31*(7), 1474–1491. https://doi.org/10.1111/j.1559-1816.2001.tb02683.x

Buchanan, J., Prescott, A. L., Schuck, S., Aubusson, P., Burke, P. J., & Louviere, J. J. (2013). Teacher Retention and Attrition: Views of Early Career Teachers. *Australian Journal of Teacher Education*, *38*(3). https://doi.org/10.14221/ajte.2013v38n3.9

Bullough, R. V., Jr., & Knowles, J. G. (1990). Becoming a teacher. Struggles of a

second-career beginning teacher. International Journal of Qualitative Studies in

Education, 3(2), 101–112.

Bullock, C. (2022). "Why Stay?" Experiences of Persistence in Former Education

Support Staff who become Second-Career Teachers [Dissertation].

https://digitalcommons.georgefox.edu/edd/182

Brownell, M. T., & Pajares, F. (1996). The Influence of Teachers' Efficacy Beliefs on

Perceived Success in Mainstreaming Students with Learning and Behavior

Problems: A Path Analysis. Research Bulletin, 27.

https://files.eric.ed.gov/fulltext/ED409661.pdf

Bhakar, Sher. (2015). Re: What is the minimum sample size per group for SEM or Path

Analysis?. Retrieved from:

https://www.researchgate.net/post/What-is-the-minimum-sample-size-per-group-f

or-SEM-or-Path-Analysis/55253ad6d685ccb84f8b4568/citation/download.

Caspersen, J., & Raaen, F. D. (2014). Novice teachers and how they cope. Teachers and

Teaching, 20(2), 189-211.

Caprara, G. V., Barbaranelli, C., Borgogni, L., & Steca, P. (2003). Efficacy Beliefs as

Determinants of Teachers' Job Satisfaction. *Journal of Educational Psychology*,

95(4), 821–832. https://doi.org/10.1037/0022-0663.95.4.821

Casely-Hayford, J., Björklund, C., Bergström, G., Lindqvist, P., & Kwak, L. (2022).

What makes teachers stay? A cross-sectional exploration of the individual and

contextual factors associated with teacher retention in Sweden. *Teaching and

Teacher Education*, *113*, 103664. https://doi.org/10.1016/j.tate.2022.103664

Chambers, D. (2002). The Real World and the Classroom: Second-Career Teachers. *The*

Clearing House: A Journal of Educational Strategies, Issues and Ideas, *75*(4), 212–217. https://doi.org/10.1080/00098650209604935

Coppe, T., Raemdonck, I., März, V., Parmentier, M., Brouhier, Q., & Colognesi, S. (2020). L'insertion professionnelle des enseignants au travers des multiples aspects de la socialisation au travail : l'ISaTE, un instrument de mesure pour les appréhender. *Mesure Et Évaluation En Éducation*, *43*(3), 67–102. https://doi.org/10.7202/1083008ar

Coppe, T., März, V., & Raemdonck, I. (2021). Becoming a second career teacher in TVET: Or… the issue of being stuck in the periphery of the school professional network. In T. Coppe & R. Wesselink (Chairs), Exploring the Issue of Second Career Teacher Retention: Toward an Integrative Approach [Symposium]. In ECER 2021.

Coppe, T., Thomas, L., Pantić, N., Froehlich, D. E., Sarazin, M., & Raemdonck, I. (2022). The use of social capital in teacher research: a necessary clarification. Frontiers in Psychology, 13, 866571.

Coppe, T., März, V., & Raemdonck, I. (2023). Second career teachers' work socialization process in TVET: A mixed-method social network perspective. *Teaching and Teacher Education*, *121*, 103914. https://doi.org/10.1016/j.tate.2022.103914

Curby, T. W., Rimm-Kaufman, S. E., & Abry, T. (2013). Do emotional support and classroom organization earlier in the year set the stage for higher quality instruction? *Journal of School Psychology*, *51*(5), 557–569. https://doi.org/10.1016/j.jsp.2013.06.001

Dickar, M. (2005). When they are good. . . A comparison of career changers and recent

college graduates in an alternative certification program. In J. R.

Demirtaş, V. Y. (2018). A Study on Teacher Candidates' Self-Efficacy, Motivation and Affection Levels for Children. *Journal of Education and Training Studies*, *6*(12), 111. https://doi.org/10.11114/jets.v6i12.3661

Dong, Y., Xu, C., Chai, C. S., & Zhai, X. (2020). Exploring the Structural Relationship Among Teachers' Technostress, Technological Pedagogical Content Knowledge (TPACK), Computer Self-efficacy and School Support. *Asia-pacific Education Researcher*, *29*(2), 147–157. https://doi.org/10.1007/s40299-019-00461-5

Duran, C. a. K., Bottiani, J. H., & Bradshaw, C. P. (2022). Teachers Supporting Teachers: A Social Network Perspective on Collegial Stress Support and Emotional Wellbeing Among Elementary and Middle School Educators. *School Mental Health*, *14*(4), 1070–1085. https://doi.org/10.1007/s12310-022-09529-y

den Brok, P., Wubbels, T., & Van Tartwijk, J. (2017). Exploring beginning teachers' attrition in the Netherlands. Teachers and teaching, 23(8), 881-895.

European Commission. (2022). *Education and Training Monitor 2022*. https://op.europa.eu/webpub/eac/education-and-training-monitor-2022/en/country -reports/belgium.html

Elliott, E. M., Isaacs, M. L., & Chugani, C. D. (2010). Promoting Self-Efficacy in Early Career Teachers: A Principal's Guide for Differentiated Mentoring and Supervision. Florida Journal of Educational Administration & Policy, 4(1), 131-146.

Friedman, I. S., & Kass, E. (2002). Teacher self-efficacy: a classroom-organization conceptualization. *Teaching and Teacher Education*, 18(6), 675–686.

https://doi.org/10.1016/s0742-051x(02)00027-6

Frost, J. (2022). Chi-Square Goodness of Fit Test: Uses & Examples. *Statistics by Jim*.
https://statisticsbyjim.com/hypothesis-testing/chi-square-goodness-of-fit-test/

Federičová, M. (2021). Teacher turnover: What can we learn from Europe? *European
Journal of Education*, *56*(1), 102–116. https://doi.org/10.1111/ejed.12429

Gonzales Rodriguez, Y. E., & Sjostrom, B. R. (1998). Critical reflection for professional
development: A comparative study of nontraditional adult and traditional student
teachers. Journal of Teacher Education, 49(3), 177–185.

Gonzalez, P. (1995). Factors That Influence Teacher Attrition. NSTEP Information Brief.

Goddard, R. D., & Goddard, Y. L. (2001). A multilevel analysis of the relationship
between teacher and collective efficacy in urban schools. *Teaching and Teacher
Education*, *17*(7), 807–818. https://doi.org/10.1016/s0742-051x(01)00032-4

Gamborg, L., Webb, A. W., Smith, A., & Baumgartner, J. J. (2018). Understanding
self-efficacy of novice teachers during induction. *Research Issues in
Contemporary Education*, 3(2), 16-2

Guarino, C. M., Santibanez, L., & Daley, G. A. (2006). Teacher Recruitment and
Retention: A Review of the Recent Empirical Literature. *Review of Educational
Research*, 76(2), 173–208. https://doi.org/10.3102/00346543076002173

Haggard, C. S., Slostad, F. A., & Winterton, S. (2006). Transition to the School as
Workplace: Challenges of second career teachers. *Teaching Education,* 17(4),
317–327. https://doi.org/10.1080/10476210601017410

Harrell, P. E., Leavell, A. G., Van Tassel, F., & McKee, K. (2004). No Teacher Left
Behind: Results of a Five-Year Study of Teacher Attrition. *Action in Teacher*

Education, 26(2), 47–59. https://doi.org/10.1080/01626620.2004.10463323

Hatlevik, O. E., & Hatlevik, O. E. (2018). Examining the Relationship Between

Teachers' ICT Self-Efficacy for Educational Purposes, Collegial Collaboration,

Lack of Facilitation and the Use of ICT in Teaching Practice. *Frontiers in*

Psychology, *9*. https://doi.org/10.3389/fpsyg.2018.00935

Hawe, P., & Ghali, L. M. (2007). Use of social network analysis to map the social

relationships of staff and teachers at school. *Health Education Research*, *23*(1),

62–69. https://doi.org/10.1093/her/cyl162

Helms-Lorenz, M., Slof, B., Vermue, C., & Canrinus, E. (2012). Beginning teachers'

self-efficacy and stress and the supposed effects of induction arrangements.

Educational Studies, *38*(2), 189–207.

https://doi.org/10.1080/03055698.2011.598679

Helms-Lorenz, M., Van De Grift, W., & Maulana, R. (2016). Longitudinal effects of

induction on teaching skills and attrition rates of beginning teachers. *School*

Effectiveness and School Improvement, *27*(2), 178–204.

https://doi.org/10.1080/09243453.2015.1035731

Holzberger, D., Philipp, A., & Kunter, M. (2013). How teachers' self-efficacy is related

to instructional quality: A longitudinal analysis. *Journal of Educational*

Psychology, *105*(3), 774–786. https://doi.org/10.1037/a0032198

Hong, J. (2012). Why do some beginning teachers leave the school, and others stay?

Understanding teacher resilience through psychological lenses. *Teachers and*

Teaching, *18*(4), 417–440. https://doi.org/10.1080/13540602.2012.696044

Hoover-Dempsey, K. V., Bassler, O. B., & Brissie, J. S. (1987). Parent Involvement:

Contributions of Teacher Efficacy, School Socioeconomic Status, and Other School Characteristics. *American Educational Research Journal*, *24*(3), 417–435. https://doi.org/10.3102/00028312024003417

House, J. S. (1981). Work Stress and Social Support. *Contemporary Sociology*, *12*(3), 329. https://doi.org/10.2307/2069001

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55.

Hoy, A. W., & Spero, R. B. (2005). Changes in teacher efficacy during the early years of teaching: A comparison of four measures. Teaching and Teacher Education, 21(4), 343–356. https://doi.org/10.1016/j.tate.2005.01.007

Ingersoll, R. M. (2012). Beginning Teacher Induction What the Data Tell Us. *Phi Delta Kappan*, *93*(8), 47–51. https://doi.org/10.1177/003172171209300811

Ingersoll, R. M., & Smith, T. J. (2004). Do Teacher Induction and Mentoring Matter? *NASSP Bulletin*, *88*(638), 28–40. https://doi.org/10.1177/019263650408863803

Ingersoll, R. M., & Strong, M. J. (2011). The Impact of Induction and Mentoring Programs for Beginning Teachers. *Review of Educational Research*, *81*(2), 201–233. https://doi.org/10.3102/0034654311403323

Israel, M., Kamman, M. L., McCray, E. D., & Sindelar, P. T. (2014). Mentoring in action: The interplay among professional assistance, emotional support, and evaluation. *Exceptional Children*, 81(1), 45-63.

Jarzabkowski, L. (2002). The social dimensions of teacher collegiality. *The Journal of Educational Enquiry*, *3*(2).

https://www.researchgate.net/profile/Lucy_Jarzabkowski/publication/251432648_

The_social_dimensions_of_teacher_collegiality/links/5417e11e0cf203f155ad65f5

.pdf

Jarzabkowski, L. (2003). Teacher Collegiality in a Remote Australian School. *Journal of Research in Rural Education*, *18*(3), 139–144.

https://www.researchgate.net/profile/Lucy_Jarzabkowski/publication/228743156_

Teacher_collegiality_in_a_remote_Australian_school/links/5417e11f0cf203f155a

d65f6.pdf

Johnson, S. L., & Birkeland, S. E. (2003). Pursuing a "Sense of Success": New Teachers Explain Their Career Decisions. *American Educational Research Journal*, *40*(3), 581–617. https://doi.org/10.3102/00028312040003581

Joiner, S., & Edwards, J. (2008). Novice teachers: Where are they going and why don't they stay. Journal of Cross-Disciplinary Perspectives in Education, 1(1), 36-43.

Jonathon. (2021, March 2). Missing values - *jamovi.*

https://forum.jamovi.org/viewtopic.php?t=1624

Klassen, R. D., & Chiu, M. M. (2010). Effects on teachers' self-efficacy and job satisfaction: Teacher gender, years of experience, and job stress. *Journal of Educational Psychology*, 102(3), 741–756. https://doi.org/10.1037/a0019237

Kahn, D. M. (2015). The value of prior professional skills and experiences: Perceptions of second-career teachers.

Korte, D. S., & Simonsen, J. C. (2017). Influence of Social Support on Teacher Self-Efficacy in Novice Agricultural Education Teachers. *Journal of Agricultural Education*, *59*(3), 100–123. https://doi.org/10.5032/jae.2018.03100

Künsting, J., Neuber, V., & Lipowsky, F. (2016). Teacher self-efficacy as a long-term predictor of instructional quality in the classroom. *European Journal of Psychology of Education*, *31*(3), 299–322. https://doi.org/10.1007/s10212-015-0272-7

Kenny, D. A. (2020). SEM: Measuring Model Fit (David A. Kenny). http://www.davidakenny.net/cm/fit.htm

Löfgren, H., & Karlsson, M. (2016). Emotional aspects of teacher collegiality: A narrative approach. Teaching and Teacher Education, 60, 270-280.

Lipscomb, S. T., Chandler, K. D., Abshire, C., Jaramillo, J., & Kothari, B. H. (2022). Early Childhood Teachers' Self-efficacy and Professional Support Predict Work Engagement. *Early Childhood Education Journal*, *50*(4), 675–685. https://doi.org/10.1007/s10643-021-01182-5

Levitt, H. M., Bamberg, M., Creswell, J. W., Frost, D. M., Josselson, R., & Suárez-Orozco, C. (2018). Journal article reporting standards for qualitative primary, qualitative meta-analytic, and mixed methods research in psychology: The APA Publications and Communications Board task force report. *American Psychologist*, 73(1), 26.

Iis, E. Y., & Yunus, M. (2016). Job satisfaction as an intervening variable of selfefficacy and employee performance. *International Journal of Academic Research in Business and Social Sciences*, 6(7), 284-298.

Lani, J. (2021). Path Analysis. Statistics Solutions. https://www.statisticssolutions.com/path-analysis/

McLaughlin, M. W. (1992). What Matters Most in Teachers' Workplace Context?

McInerney, D. M., Korpershoek, H., Wang, H., & Morin, A. J. S. (2018). Teachers' occupational attributes and their psychological well being, job satisfaction, occupational self-concept and quitting intentions. *Teaching and Teacher Education*, *71*, 145–158. https://doi.org/10.1016/j.tate.2017.12.020

Mintz, J. (2019). A comparative study of the impact of enhanced input on inclusion at pre‑service and induction phases on the self‑efficacy of beginning teachers to work effectively with children with special educational needs. *British Educational Research Journal*, *45*(2), 254–274. https://doi.org/10.1002/berj.3486

Moolenaar, N. M., Daly, A. J., & Sleegers, P. (2011). Ties with Potential: Social Network Structure and Innovative Climate in Dutch Schools. *Teachers College Record*, *113*(9), 1983–2017. https://doi.org/10.1177/016146811111300906

Mutton, T., Hagger, H., & Burn, K. (2011). Learning to plan, planning to learn: the developing expertise of beginning teachers. *Teachers and Teaching*, *17*(4), 399–416. https://doi.org/10.1080/13540602.2011.580516

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, 1, 130-149.

Moran, M. (2021). The Chi-Square Test in Structural Equation Modeling. *Statistics Solutions*. https://www.statisticssolutions.com/the-chi-square-test-in-structural-equation-modeling/

OECD. (2022). Starting unequal: How's life for disadvantaged children? https://doi.org/10.1787/91fcd679-en

Pogodzinski, B. (2014). Collegial support and novice teachers' perceptions of working conditions. Journal of Educational Change, 15, 467-489.

Patrick, F., Elliot, D., Hulme, M., & McPhee, A. (2010). The importance of collegiality and reciprocal learning in the professional development of beginning teachers. Journal of education for teaching, 36(3), 277-289.

Papatraianou, L. H., & Cornu, R. L. (2014). Problematising the Role of Personal and Professional Relationships in Early Career Teacher Resilience. Australian Journal of Teacher Education, 39(1). https://doi.org/10.14221/ajte.2014v39n1.7

Postholm, M. B. (2012). Teachers' professional development: A theoretical review. *Educational research*, 54(4), 405-429. https://doi.org/10.1080/00131881.2012.734725

Porter, T., West, M. E., Kajfez, R. L., Malone, K. L., & Irving, K. E. (2019). The effect of teacher professional development on implementing engineering in elementary schools. Journal of Pre-College Engineering Education Research (J-PEER), 9(2), 5.

Pearce, T. (2023, January 26). *UK schools sinking under teacher retention crisis and billions in funding cuts*. World Socialist Web Site. https://www.wsws.org/en/articles/2023/01/26/ocsr-j26.html

Petersen, T. (2001). International Encyclopedia of the Social & Behavioral Sciences. ScienceDirect. https://www.sciencedirect.com/science/referenceworks/9780080430768

Ronfeldt, M., & McQueen, K. (2017). Does New Teacher Induction Really Improve Retention? *Journal of Teacher Education*, *68*(4), 394–410.

https://doi.org/10.1177/0022487117702583

Ruitenburg, S. K., & Tigchelaar, A. (2021). Longing for recognition: A literature review of second-career teachers' induction experiences in secondary education. *Educational Research Review*, *33*, 100389. https://doi.org/10.1016/j.edurev.2021.100389

Shah, M. (2012). The importance and benefits of teacher collegiality in schools–A literature review. Procedia-Social and Behavioral Sciences, 46, 1242-1246.

Schunk, D. H. (1995). Self-efficacy, motivation, and performance. *Journal of Applied Sport Psychology*, *7*(2), 112–137. https://doi.org/10.1080/10413209508406961

Schutz, P. A., & Zembylas, M. (2009). Introduction to advances in teacher emotion research: The impact on teachers' lives (pp. 3-11). Springer US.

Shen, Y. (2009). Relationships between self-efficacy, social support and stress coping strategies in Chinese primary and secondary school teachers. *Stress and Health*, *25*(2), 129–138. https://doi.org/10.1002/smi.1229

Skaalvik, E. M., & Skaalvik, S. (2007). Dimensions of teacher self-efficacy and relations with strain factors, perceived collective teacher efficacy, and teacher burnout. *Journal of Educational Psychology*, *99*(3), 611–625. https://doi.org/10.1037/0022-0663.99.3.611

Skaalvik, E. M., & Skaalvik, S. (2016). Teacher Stress and Teacher Self-Efficacy as Predictors of Engagement, Emotional Exhaustion, and Motivation to Leave the Teaching Profession. *Creative Education*, *07*(13), 1785–1799. https://doi.org/10.4236/ce.2016.713182

Siciliano, M. D. (2016). It's the quality not the quantity of ties that matters: Social

networks and self-efficacy beliefs. *American Educational Research Journal*, 53(2), 227-262.

Smith, T. J., & Ingersoll, R. M. (2004). What Are the Effects of Induction and Mentoring on Beginning Teacher Turnover? *American Educational Research Journal*, *41*(3), 681–714. https://doi.org/10.3102/00028312041003681

Spillane, J. P., Kim, C., & Frank, K. A. (2012). Instructional Advice and Information Providing and Receiving Behavior in Elementary Schools. *American Educational Research Journal*, *49*(6), 1112–1145. https://doi.org/10.3102/0002831212459339

Suell, J. L., & Piotrowski, C. (2007). Alternative teacher education programs: a review of the literature and outcome studies. *Journal of Instructional Psychology*, *34*(1), 54–59. https://eric.ed.gov/?id=EJ761256

Schmitt, J., & deCourcy, K. (2022). The Pandemic Has Exacerbated a Long-Standing National Shortage of Teachers. Economic Policy Institute.

Symeonidis, V., Haas, E., & Schneider, K. (2023). Personal, social and professional support for newly qualified teachers: Teacher induction in Austria. *Teaching and Teacher Education*, 121, 103916. https://doi.org/10.1016/j.tate.2022.103916

Shi, D., Lee, T., & Maydeu-Olivares, A. (2018). Understanding the Model Size Effect on SEM Fit Indices. *Educational and Psychological Measurement*, 79(2), 310–334. https://doi.org/10.1177/0013164418783530

Streiner, D. L. (2005). Finding Our Way: An Introduction to Path Analysis. *The Canadian Journal of Psychiatry*, 50(2), 115–122. https://doi.org/10.1177/070674370505000207

Thomas, L., Tuytens, M., Devos, G., Kelchtermans, G., & Vanderlinde, R. (2019).

Beginning teachers' professional support: A mixed methods social network study. *Teaching and Teacher Education*, *83*, 134–147. https://doi.org/10.1016/j.tate.2019.04.008

Thomas, L., Tuytens, M., Moolenaar, N. M., Devos, G., Kelchtermans, G., & Vanderlinde, R. (2019). Teachers' first year in the profession: the power of high-quality support. *Teachers and Teaching*, *25*(2), 160–188. https://doi.org/10.1080/13540602.2018.1562440

Tigchelaar, A., Brouwer, C. N., & Vermunt, J. D. (2010). Tailor-made: Towards a pedagogy for educating second-career teachers. *Educational Research Review*, *5*(2), 164–183. https://doi.org/10.1016/j.edurev.2009.11.002

Tigchelaar, A., Brouwer, N., & Korthagen, F. a. J. (2008). Crossing horizons: Continuity and change during second-career teachers' entry into teaching. *Teaching and Teacher Education*, *24*(6), 1530–1550. https://doi.org/10.1016/j.tate.2008.03.001

Troesch, L. M., & Bauer, C. C. (2017). Second career teachers: Job satisfaction, job stress, and the role of self-efficacy. *Teaching and Teacher Education*, *67*, 389–398. https://doi.org/10.1016/j.tate.2017.07.006

Tschannen-Moran, M., & Hoy, A. W. (2007). The differential antecedents of self-efficacy beliefs of novice and experienced teachers. *Teaching and Teacher Education*, *23*(6), 944–956. https://doi.org/10.1016/j.tate.2006.05.003

The jamovi project (2022). jamovi (Version 2.3) [Computer Software]. Retrieved from https://www.jamovi.org

Uitto, M., Jokikokko, K., & Estola, E. (2015). Virtual special issue on teachers and emotions in Teaching and teacher education (TATE) in 1985–2014. Teaching and

teacher education, 50, 124-135.

Van Uden, J. M., Ritzen, H., & Pieters, J. M. (2014). Engaging students: The role of teacher beliefs and interpersonal teacher behavior in fostering student engagement in vocational education. *Teaching and Teacher Education*, 37, 21–32. https://doi.org/10.1016/j.tate.2013.08.005

Van Rooij, E., Fokkens-Bruinsma, M., & Goedhart, M. (2019). Preparing Science Undergraduates for a Teaching Career: Sources of Their Teacher Self-Efficacy. *The Teacher Educator*, 54(3), 270–294. https://doi.org/10.1080/08878730.2019.1606374

Wilson, C. L. (2021, January 14). The Salary Gap. *Education Week*. https://www.edweek.org/education/the-salary-gap/2000/01

Xia, Y., & Yang, Y. (2018). RMSEA, CFI, and TLI in structural equation modeling with ordered categorical data: The story they tell depends on the estimation methods. *Behavior Research Methods*, 51(1), 409–428. https://doi.org/10.3758/s13428-018-1055-2

Yost, D. S. (2006). Reflection and Self-Efficacy: Enhancing the Retention of Qualified Teachers from a Teacher Education Perspective. *Teacher Education Quarterly*, *33*(4), 59–76. http://files.eric.ed.gov/fulltext/EJ795226.pdf

Zee, M., & Koomen, H. M. (2016). Teacher Self-Efficacy and Its Effects on Classroom Processes, Student Academic Adjustment, and Teacher Well-Being. *Review of Educational Research*, *86*(4), 981–1015. https://doi.org/10.3102/0034654315626801

Zonoubi, R., Rasekh, A. E., & Tavakoli, M. (2017). EFL teacher self-efficacy

development in professional learning communities. *System, 66,* 1–12.

https://doi.org/10.1016/j.system.2017.03.003

Appendix A

Descriptives Statistics

	Teachers type	Self-Efficacy	Attrition	Professional support	Emotional support	Years of teaching	Students' SES
N	1	515	478	533	532	532	515
	2	936	864	977	976	0	936
Missing	1	18	55	0	1	1	18
	2	41	113	0	1	977	41
Mean	1	4.06	2.08	6.46	5.91	8.56	3.01
	2	4.19	2.04	7.19	6.96	NaN	3.30
Median	1	4.13	1.33	6.32	6.16	6.00	2
	2	4.25	1.67	7.35	7.00	NaN	4.00
SD	1	0.60	1.28	3.27	3.48	7.54	1.51
	2	0.53	1.18	3.18	3.46	NaN	1.52
Minimum	1	1.13	1.00	0.00	0.00	0.00	1
	2	1.00	1.00	0.00	0.00	NaN	1
Maximum	1	5.00	5.00	17.3	17.3	36.0	6

	Teachers type	Self-Efficacy	Attrition	Professional support	Emotional support	Years of teaching	Students' SES
Maximum	2	5.00	5.00	17.3	19.0	NaN	6

Note. 1 represents second career teachers. 2 represents first career teachers. SD represents standard deviation. NaN is short for not a number. NaN for years of teaching experience means that first career teachers' teaching experience is zero years.

Appendix B

Model Tests and Model Fit Indices

Figure B1

Model Tests

Label	X²	df	p
User Model	28.7	4	< .001
Baseline Model	231.2	18	< .001
Group 1	0.0	0	1.000
Group 2	0.0	0	1.000

Note. Group 1 represents second career teachers. Group 2 represents first career teachers.
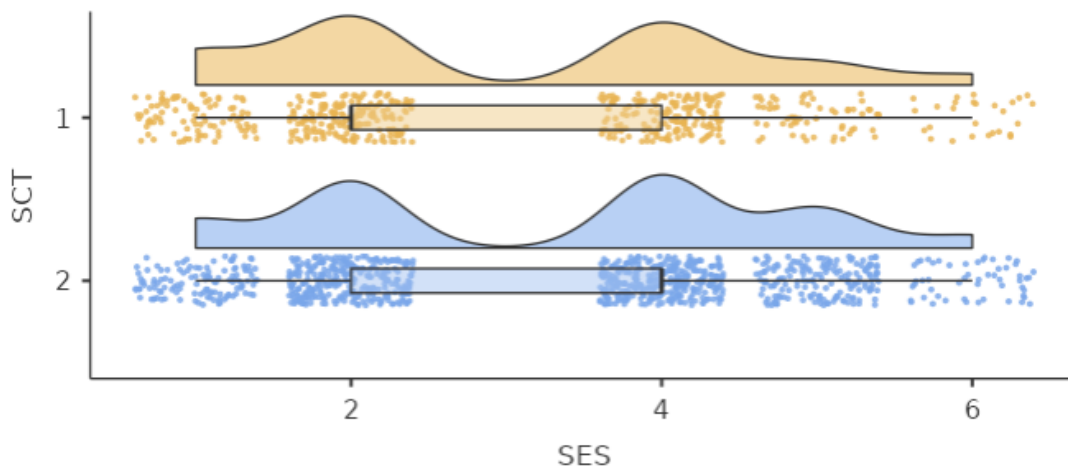
Figure B2

Fit Indices 1

					RMSEA 95% CI		
AIC	BIC	adj. BIC	SRMR	RMSEA	Lower	Upper	RMSEA p
6360	6475	6405	0.026	0.096	0.065	0.130	0.009

Figure B3

Fit Indices 2

CFI	TLI	RNI	GFI	adj. GFI	pars. GFI
0.884	0.478	0.884	1.000	0.996	0.074

Appendix C

Distribution of Students' SES in SCTs' and FCTs' Schools

Note. SCT 1 represents second career teachers. SCT 2 represents first career teachers. SES represents students'

socioeconomic status.