



How failure experience combined with high teacher self-aspect importance puts self-efficacy at risk among student teachers

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Abstract

The present study focuses on how elementary-level student teachers reacted to difficulties during their first internship experience. More specifically, we analysed how their self-efficacy was affected by (a) their perception of failure during the internship, (b) the importance they assigned to their teacher self-aspect, and (c) the interaction between these two constructs. Using a quantitative design ($N = 124$), we measured their self-efficacy both before and after a 2-week internship. Results showed an overall increase in self-efficacy, but no such increase for participants with high teacher self-aspect who reported high failure experience, which indicated an amplifying moderation effect of teacher self-aspect in the relation between failure experience and change in self-efficacy. We discuss the profile of these “high-importance/high-failure” students and the support that can be given to them.

Keywords Teacher education · Teacher internship · Teacher self-efficacy · Teacher self-aspect

Introduction

Internships are considered an essential part of the curriculum in teacher education (Colognesi et al., 2021; Kervick et al., 2020). The internship is a supervised pedagogical activity that allows student teachers to learn about the teaching profession (Tominska et al., 2017). In doing so, they develop their experiential knowledge as well as their teaching skills and professional identity and also socialize within the profession (Coppe et al., 2021; Chu, 2020; Correa Molina et al., 2008).

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Thus, the internship constitutes a “strong” learning moment for the student. It would be difficult for students to develop the skills required for the teaching profession in any other way (Van Nieuwenhoven et al., 2020a; Tominska et al., 2017). Indeed, the internship represents a chance for practicing the job that is embedded in the teacher training program, where the trainee is supporting in discovering the teaching profession (Vanhulle, 2012). As such, the internship is a safe place for experimenting in the teaching profession.

A lot of current research on internships focuses primarily on coaches: internship supervisors and university supervisors. Researchers have investigated coaches’ needs (Van Nieuwenhoven & Colognesi, 2013), their actual activity (Colognesi et al., 2018; Maes et al., 2020; Borko & Mayfield, 1995; Cuenca, 2010), their difficulties (Bradbury & Koballa, 2008; Hansford et al., 2004; Hudson & Hudson, 2018), and how they can give feedback (Maes et al., 2020). Other work has focused on the postures that supervisors can adopt to support student teachers (Colognesi et al., 2019; Vivegnis, 2019), including aspects that ensure an effective relationship between supervisors and the classroom teachers in whose classes the student teachers are placed for their internships (Maes et al., 2019, 2019; Biémar & Castin, 2012).

Therefore, in internship research, there has been a growing trend to study coaches, but so far, the student teachers themselves have gotten less attention in the literature. However, a series of research studies have questioned what students do in their internship practices with the knowledge from their university training. For example, studies have begun to look at how students plan their teaching activities, showing that they use resources from the training and their internship supervisor (Deprit & Van Nieuwenhoven, 2018). Other work has examined what student teachers do with the theoretical knowledge from their university training when they are on internships (Caron & Portelance, 2017; Perez-Roux, 2016). These studies highlighted that transferring theoretical knowledge from the training program into their teaching during the internships is complex. In fact, in their training, they receive a range of types of knowledge that they must apply in the internship (Altet et al., 2013). These types of knowledge are related to disciplinary training, didactic and pedagogical training, training in human and social sciences, and communications training (Fédération Wallonie-Bruxelles, 2019, art. 14, p.7). Student teachers must teach the class while both respecting the practices of their practicum teacher and using what they have learned in university training, because this second aspect will be evaluated by the supervisor when he comes to visit the practicum location. Moreover, student teachers’ internships are the first confrontation these future teachers have with the reality of the teaching profession. This shows that, for trainees, the internship can be a very complex situation (Caron & Portelance, 2017).

Previous teacher self-efficacy research has suggested mainly high self-efficacy at the very beginning of teaching experiences and a decrease in self-efficacy after the first teaching experiences (Hoy & Spero, 2005). The development of self-efficacy by student teachers during their internship could be rather mixed. As suggested by existing literature about beginning teachers’ self-efficacy, on the one hand, it can start quite buoyant, as they do not know what they are in for, but it can take a dip if they experience several challenges or failures. On the other hand, as the internship represents a training environment, student teachers may also increase their self-efficacy throughout their internship, as shown by Knoblauch and Woolfolk Hoy (2008). Additionally, how important it is for the trainees to be teachers (i.e. the importance of their teacher self-aspect) can make them react differently to challenging situations (McConnell, 2011). Kelchtermans (2009) suggested that teachers develop a sense of themselves as teachers in the early phases of their career and that this

teacher self-aspect is of extra importance for coping with challenging experiences, such as the first teaching experiences or the student teacher's internship.

Teachers' self-efficacy can be defined as their perception of their ability to carry out their teaching tasks (Duffin et al., 2012) in a particular context (Tschannen-Moran et al., 1998). This can also be understood as "individual teachers' beliefs in their own abilities to plan, organize, and carry out activities required to attain given educational goals" (Skaalvik & Skaalvik, 2007, p. 612). In the literature on the self, global self-concept is generally represented as composed of multiple different aspects (i.e. the *self-aspects*), which refer to the different facets of a person (McConnell, 2011; Showers & Ziegler-Hill, 2003). For example, someone's global self-concept may contain several self-aspects such as "parent", "life partner", "friend", "employee", "musician", and "reliable person", and these aspects may be more or less important within their overall self-concept (McConnell, 2011). In this sense, student teachers' teacher self-aspect importance can be understood as the extent to which this aspect is predominant in their global self. These self-aspects have been shown to influence one's reactions to aversive life experiences (e.g. injury, failure, rejection, stressful events; for a review, see Koch and Shepperd (2004)).

Practicum, and thus the internship, can be a moment when future teachers adjust their sense of self-efficacy in a positive or negative way. Beginning teachers generally report a loss of self-confidence during their initial period of teaching (Hoy & Spero, 2005). Research has shown a link between teachers' self-efficacy beliefs and their longevity in the profession (Chesnut, 2017). Self-efficacy beliefs have also been shown to be related to improved instructional quality (Buric & Kim, 2020) and positive relationships with students (Hajovsky et al., 2020), but they can be linked with negative aspects as well, such as anxiety or burnout (Betoret, 2009; Schwarzer & Hallum, 2008).

In addition, for many novices, being a (good) teacher is an important part of their self-image (Korthagen, 2004). They are highly invested in their work, which leads to a merging of their sense of personal and professional identity. Thus, when they talk about their work, they talk about themselves (Kelchtermans, 2009). This particular aspect of teacher identity related to "Who am I" may have an influence on the construction of self-efficacy beliefs by student teachers (Flores & Clark, 2004, p. 237).

The question then arises as to the interaction of the construction of self-efficacy beliefs and the teacher self-aspect of student teachers during their training, specifically during their first experience in a classroom. Therefore, in this paper, we investigate self-efficacy beliefs among student teachers after their first student teaching assignment, in order to gain a better understanding of this experience and the influences at play. This will allow us to tailor the support that can be given to them, both during their internship and after returning from the internship, during their training at the university.

Teacher self-efficacy

Beliefs about self-efficacy develop from four sources of information (Bandura, 1997). The first source is active mastery experiences, that is, the influence of experiences of success or failure in one's background, school history, and past academic achievements. The second is vicarious experiences, that is, being aware of the success or failure of others in tasks. This can influence one's own self-efficacy beliefs. Others' perceived level of competence also influences the construction of one's own self-efficacy beliefs. The third is verbal persuasion, that is, the impact of encouragement, words of support, or any other message given to the learner. The fourth is physiological and emotional states, representing emotional

reactions to tasks, such as anxiety, stress, or confidence. These physiological and emotional states impact self-efficacy development (Hanin et al., 2017).

Mastery experience is considered to be the most important antecedent of self-efficacy for teachers. Reviewing the literature on the sources of students' self-efficacy, Usher and Pajares (2008) found that, unlike the other sources, mastery experience was significantly related to self-efficacy in every study reviewed, with correlations ranging from .29 to .67. The predominance of mastery experiences was supported as well among student teachers by Rots et al. (2012). The negative counterpart of mastery experience is failure experience. As stated by Bandura (1997), "successes build a robust belief in one's personal efficacy. Failures undermine it, especially if failures occur before a sense of efficacy in firmly established" (p. 80). In this way, particularly for student teachers, the construct of failure experience could be an important antecedent of changes in teacher self-efficacy.

Several studies have highlighted changes in teachers' self-efficacy during their pre-service education and subsequent career. In particular, two key moments have been investigated: student teaching experience and the induction period. While the first months of teaching were found to lead to a decrease in self-efficacy beliefs (Lamote & Engels, 2010; Hoy & Spero, 2005), student teaching has tended to be associated with an increase in self-efficacy (Flores, 2015; Klassen & Durksen, 2014; Knoblauch & Chase, 2015; Pfitzner-Eden, 2015).

Knoblauch and Woolfolk Hoy (2008) examined student teachers' self-efficacy before and after 16-week student teaching assignments completed in urban, suburban, and rural contexts. Although they were expecting a decline in self-efficacy among student teachers placed in urban schools, due to the challenging working conditions (lack of resources, more difficult students, etc.), they found an increase in self-efficacy beliefs in all three settings.

Yet, not all student teachers are going to be similarly affected by those possible failure experiences. It has been suggested that various types of cognitive processing are likely to influence the effect of the sources of self-efficacy information on one's sense of efficacy (Bandura, 1997; Tschannen-Moran et al., 1998). According to those authors, these cognitive processes refer to the interpretation of self-efficacy-related information and determine how the sources of information will be weighted and how they will influence self-efficacy beliefs in the end (Tschannen-Moran et al., 1998). For example, cognitive processing may be biased, depending on pre-existing beliefs, attributions, the importance given to the diverse sources of information, and so forth (Bandura, 1997).

Teacher self-aspect

Teacher self-aspect importance refers to the extent to which being a teacher is an important aspect of one's self. Each person possesses a self that encompasses several self-aspects (McConnell, 2011). Teacher self-aspect and teacher identity are closely related but are situated at different levels (Korthagen, 2004). While teacher self-aspect importance refers to the degree of importance that one gives to being a teacher as part of one's self, teacher identity refers to what *type* of teacher someone is (i.e. who I am as a teacher; Korthagen, 2004).

The relative importance of self-aspects may have an impact on people's reactions to success and failure experiences (Lutz & Ross, 2003). Some studies have provided evidence of the moderating role of self-aspect importance in the relationship between failure and difficulties and individual feelings. Brewer (1993) was one of the first to have conducted an empirical

study on these issues, for the field of sport psychology. He showed in four successive studies that the more strongly athletes identified with their athletic self-aspect, the more they reported being depressed after experiencing an actual or hypothetical injury preventing them from practicing their sport.

More recently, Devos (2013) developed a measure of self-aspect importance based on the work of Brewer (1993). They found that the more strongly first-year university students identified with their student self-aspect, the more they reported feelings of depression after experiencing failure on a fake test presented as a well-known predictor of success at the university. Thus, failure on a task related to a particular self-aspect that is very important for the person is likely to have a stronger negative impact on them (e.g. stronger feeling of depression, stronger decrease in self-efficacy) than failure on a task that is related to a less important self-aspect (Devos, 2013).

For novice teachers, being a teacher is an important part of their self-concept. Student teachers are in the process of constructing their self-image as teachers, and their first internship is their first confrontation with the realities of practice (Pelini, 2013).

This study

Student teaching internships are the first confrontation with the reality of the teaching field and can be perceived by student teachers as a failure or as a success. This perception will interact with the importance the student teachers assign to their teacher self-aspect, and ultimately this interaction will impact their self-efficacy development. The main research question of this study is, therefore, “How does the self-efficacy of student teachers change during their first internship with regard to the effect of failure experiences and the importance of their teacher self-aspect?” We formulate three sub-questions to pursue this objective:

- RQ1: To what extent does student teachers’ self-efficacy change between a pre-internship measure and a post-internship measure?
- RQ2: To what extent is failure experience related to a change in self-efficacy during the internship?
- RQ3: To what extent does teacher self-aspect moderate the relation between failure experience and change in student teachers’ self-efficacy?

We hypothesize an overall increase in self-efficacy beliefs (1). We expect that failure experience will be related to a negative change in self-efficacy (2) and that the importance attributed to teacher self-aspect will have a moderating effect on the relation between failure experience and change in self-efficacy (3), such that teacher self-aspect importance is expected to amplify the relation between failure experience and change in self-efficacy. That is, the more important the teacher self-aspect is, the more negative the impact of any failure experiences during the internship will be on the student teacher’s self-efficacy.

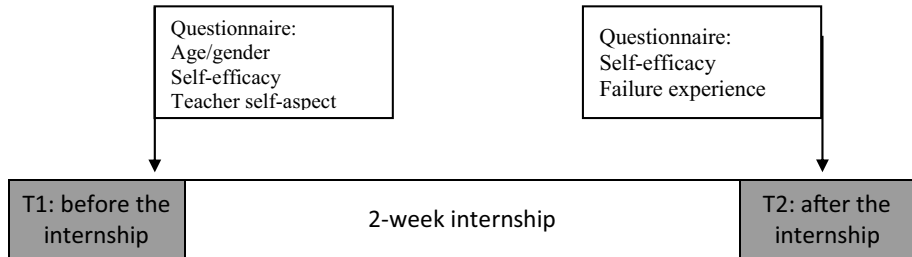


Fig. 1 Data collection design

Method

Participants and procedure

A total of 124 students participated in this study. They came from six different institutions¹ serving the French-speaking community in Belgium. They were elementary student teachers who were doing their first teaching internship—not an observation placement but an internship in which they actually teach in the classroom. They had to take charge of the class on their own. Their internship lasted about 2 weeks. They were 19.9 years old on average ($SD = 2.4$), and 107 were female. Participation in this study was voluntary. They were asked to respond to a questionnaire twice during their initial training, once before their internship (T1), and a second time after it had been completed (T2). At time 1, the researchers went into the student teachers' classes at their training institution in order to present the research, administer the first questionnaire, and collect student teachers' e-mail addresses. After the participants had completed their student teaching internship, they received the second questionnaire by e-mail (time 2). Student teachers signed a consent form to use their anonymised data for scientific purposes.

Measures

Figure 1 shows the research design used. The questionnaire consisted of several aspects, which are detailed below. Questionnaire was presented in French. For this paper, items are translated in English for the sake of clarity. The self-efficacy, teacher self-aspect, and failure experience scales all used a Likert-type response format, with values ranging from 1 (strongly disagree) to 5 (strongly agree). Confirmatory factor analyses are reported for previously validated scales (self-efficacy and self-aspect), and exploratory factor analyses are reported for the only scale created specifically for the purpose of this study (failure experience).

Self-efficacy was measured at time 1 and time 2 with 5 items. The scale was developed by Devos et al. (2012). The scale includes items referring to the three classical dimensions of self-efficacy highlighted by Tschannen-Moran and Hoy (2001): classroom management, instructional strategies, and student engagement. An item was also added referring

¹ In Belgium, students follow their teacher training course in a pedagogical high school, over a total of 3 years.

to relations with colleagues, as teachers also have to work within a social context, with collaborative dynamics between colleagues (Friedman & Kass, 2002). Sample items are as follows: “I am able to manage the class group”, “I am able to conduct a lesson”, and “I am able to communicate with the students”. The internal consistency of the scale was $\alpha = .72$ at T1 and $\alpha = .73$ at T2. Confirmatory factor analysis confirmed that each item is part of the self-efficacy construct and showed adequate fit indices at T1 ($\chi^2 = 14.00_{(5)}$, $p = .02$; CFI = .93; SRMR = .04) and at T2 ($\chi^2 = 7.18_{(5)}$, $p = .21$; CFI = .98; SRMR = .03)². The composite variable, change in self-efficacy, was calculated for each student teacher by considering the difference between the T2 and T1 efficacy values (change in self-efficacy = self-efficacy T2–self-efficacy T1). Positive values indicated increases in student teachers’ self-efficacy beliefs, negative values indicated declines, and zero indicated no change.

Failure experience was measured after the internship (T2) with 3 items. This scale represents the degree to which the student teachers consider that their student teaching assignment was a failure. We formulated the three items on the basis of mastery experience items (Usher & Pajares, 2008), but at the other end of the continuum, to represent failure experience. The internal consistency of the scale was $\alpha = .88$. Examples of items are as follows: “I feel that I passed my internship unsatisfactorily” and “I consider my internship to be a failure”. Exploratory factor analysis with maximum likelihood estimation and oblimin rotation found a single-factor structure. All items loaded on one factor, with loadings from .79 to .95, and the factor explained 77.8% of the variance.

Self-aspect importance was measured before the internship (T1) and refers to the importance that is attributed by the participants to their teacher self-aspect. The scale was adapted by Devos (2013) from the Athletic Identity Measurement Scale (Brewer, 1993). The scale contains 8 items. Examples of items are as follows: “I have many goals related to being a teacher”, “Being a teacher is the most important part of my life”, and “I spend more time thinking about being a teacher than anything else”. The internal consistency of the scale was $\alpha = .88$. Confirmatory factor analysis showed that each item was part of the construct of teacher self-aspect and showed adequate fit indices ($\chi^2 = 19.30_{(20)}$, $p = .50$; CFI = 1.00; SRMR = .03).

Data analysis

Analyses were performed on Jamovi 1.0.8 software. To address our three hypotheses, we ran a paired samples *t*-test, a three-step regression model analysis, and a moderation model analysis, respectively. To illustrate the moderation effect, that is the change in self-efficacy for the specific high-failure/high teacher self-aspect students, we used the split proposed by the moderation model for high teacher self-aspect score, and we split the sample on the basis of the median to identify students with high failure experience.

² CFI > .90 and SRMR < .08 show adequate fit. Chi-square values are reported, but they are no longer considered as relevant indices because of their extreme sensitivity to sample size (Little, 2013).

Results

The results are presented in two parts. First, descriptive results relating to the pre-internship period are presented. Thus, these results reflect student teachers' perceptions before being confronted with the realities of the field, that is, when their representations of teaching are based only on theory and on their former experience as students. Second, we highlight the results relating to changes in self-efficacy that may have occurred as a result of this practicum experience, considered in relation to the sense of success or failure of the internship and the importance given to their teacher self-aspect at T1.

Descriptive results related to the pre-training period

Figure 2 presents an overview of student teachers' self-efficacy prior to their first internship. Because this was their first internship, their sense of self-efficacy was therefore based on the theoretical courses they had taken and the image they had of the profession. It was certainly shaped by the students' personal school experiences but also by their few days of classroom observation.

Overall, student teachers appeared to have high average self-efficacy prior to their very first internship ($M = 4.00$, $SD = .54$). This was seen particularly in relation to the ability to communicate with students and other student teachers. The two items with the lowest averages, even though the results were still high, referred to the ability to conduct a lesson and manage the group of students. One possible reason is that these two aspects in particular were worked on during initial training. They were also the two most complex aspects, compared to the others. This was less the case for the communicative aspects, which are similar to transferable competences that are often acquired beforehand and are not specifically related to their initial training.

Figure 3 presents the mean values for importance given to their teacher self-aspect by student teachers. The results showed relatively high average importance ($M = 3.78$, $SD = .70$). However, there were some differences across the items. The items that referred to achievement of personal goals received higher mean scores, while the others received, on average, lower mean scores for the student teachers questioned.

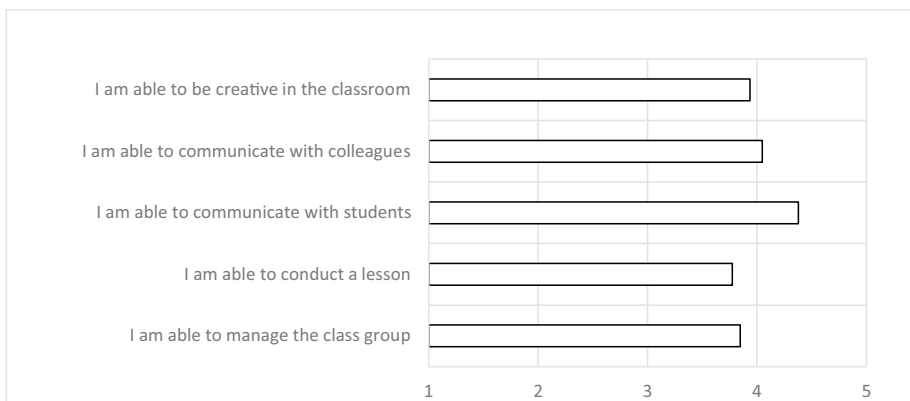


Fig. 2 Mean scores for self-efficacy items before the internship ($N = 124$). X-axis represents the level of agreement, with 1 as the lowest level and 5 the highest.

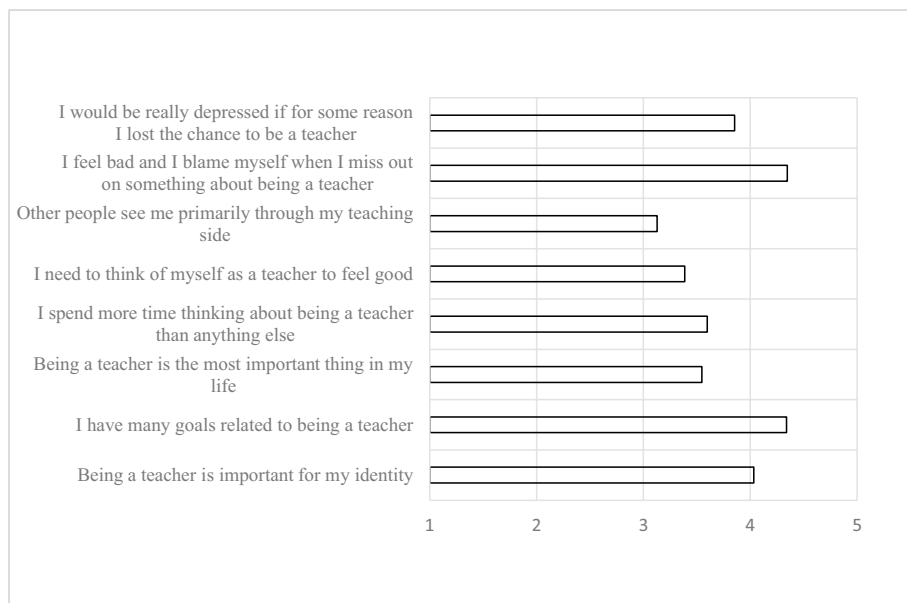


Fig. 3 Mean scores for teacher self-aspect importance items before the internship ($N = 124$). X-axis represents the level of agreement, with 1 as the lowest level and 5 the highest.

Table 1 Correlation matrix ($N = 124$)

	Age	Gender	SE T1	SE T2	Change SE	Failure	Teacher SA
Age	—						
Gender	-.035	—					
SE T1	.035	-.081	—				
SE T2	.001	-.053	.537***	—			
Change SE	-.035	.027	-.462***	.500***	—		
Failure	.061	-.028	-.248**	-.492***	-.263**	—	
Teacher SA	-.022	.105	.258**	.217*	-.036	-.258**	—

* $p < .005$; ** $p < .01$; *** $p < .001$;

SE: Self-efficacy / Change SE: Change in Self-efficacy between T1 and T2 / Failure: perceived failure experience / Teacher SA: teacher's self-aspect.

Table 2 Results of the regression model predicting change in SE ($N = 124$)

	β	Cumulative R^2	Model p -value
Step 1			
Age	-.03		
Gender	.03		
		.002	.89
Step 2			
Age	-.02		
Gender	.09		
Failure	-.29**		
Teacher SA	-.11		
		.08	.036
Step 3			
Age	-.01		
Gender	.04		
Failure	-.38***		
Teacher SA	-.07		
Failure*Teacher SA	-.26**		
		.14	.004

* $p < .005$; ** $p < .01$; *** $p < .001$

Factors associated with the change in self-efficacy

Table 1 presents the correlation analyses of the demographic variables, measures of self-efficacy (T1 and T2), internship failure experience, and teacher self-aspect importance. It highlights some significant associations between variables. There was no significant relationship between the demographic variables (gender and age) and the other variables. Self-efficacy scores before and after the internship were positively correlated with teacher self-aspect importance. Finally, changes in self-efficacy and teacher self-aspect importance were both negatively correlated with internship failure experience.

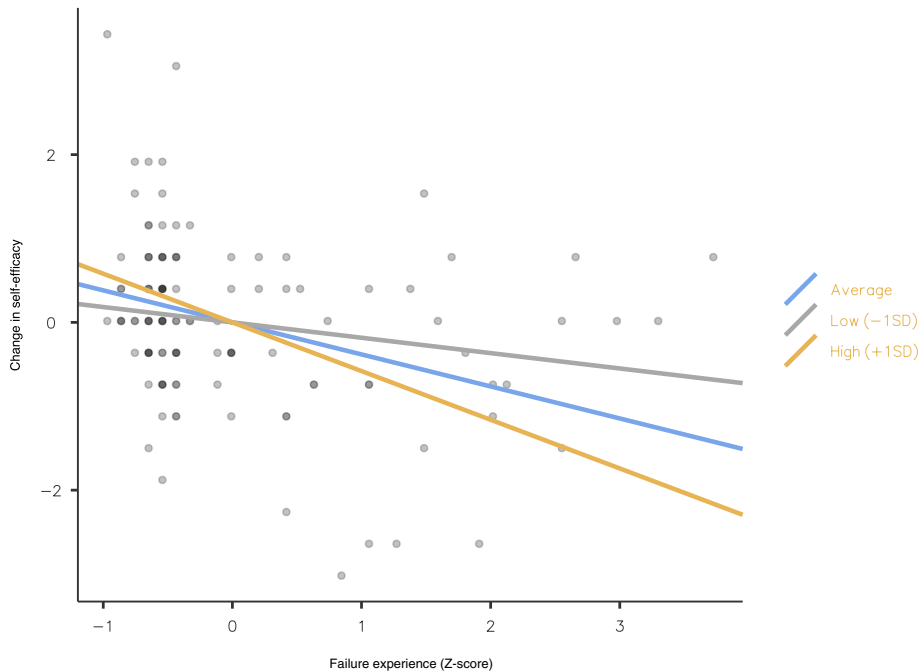
The paired samples t -test results for self-efficacy before the internship ($M = 4.00$, $SD = .54$) and self-efficacy after the internship ($M = 4.19$, $SD = .56$) showed a statistically significant increase in self-efficacy following the internship, with a small to medium effect size for the student teachers in our study [$t(123) = 3.98$, $p < .001$, Cohen's $d = -.36$].

In order to understand the interaction effect between failure experience and the importance given to teacher self-aspect with regard to change in self-efficacy, regression models were run (see Table 2). Demographic variables, that is age and gender, were entered in the first step. The perceived failure in the internship and the importance given to teacher self-aspect were entered in the second step. The interaction effect between those two variables was added in the third step. Dependent variable was change in self-efficacy.

The results presented in Table 2 indicated that age, gender, and teacher self-aspect importance were not predictors of change in self-efficacy. On the other hand, internship failure experience strongly and negatively predicted it, confirming the evidence provided by the correlations between variables. These analyses also showed that the interaction effect between failure experience and teacher self-aspect importance was large and significant. That third step explained an additional 5.4% of the variance in the change in self-efficacy, while adding the interaction variable made the predictor model in step 3 significantly

Table 3 Simple slope estimates
($N = 124$)

	β	SE	Z	p
Average teacher self-aspect	-.38	.09	-.20	< .001
Low teacher self-aspect (-1SD)	-.18	.12	-.79	.05
High teacher self-aspect (+1SD)	-.58	.10	-.83	< .001

**Fig. 4** Simple slope plot ($N = 124$)

better than that in step 2 [$F(1,118) = 7.41, p < .01$]. In other words, unlike internship failure experience, teacher self-aspect importance did not directly influence the change in self-efficacy. On the other hand, considering teacher self-aspect importance as a moderator of the change in self-efficacy (through its interaction with internship failure experience) allowed us to better explain statistically the change in self-efficacy after the internship.

This led us to seek to deepen the link between internship failure experience and change in self-efficacy by questioning more precisely the moderating impact of teacher self-aspect importance in this relationship. In-depth analyses (simple slope analysis) made it possible to highlight very different behaviours with regard to the impact of internship failure experience on change in self-efficacy for two distinct groups of students: those with high teacher self-aspect importance (one standard deviation above the mean) and those with low teacher self-aspect importance (one standard deviation below the mean). Table 3 presents these very different outcomes. For students with low teacher self-aspect importance ($\beta = -.18, p = .05$), we found a low and marginally significant ($p = .05$) prediction of negative change in self-efficacy by internship failure experience. For the group of students with high teacher

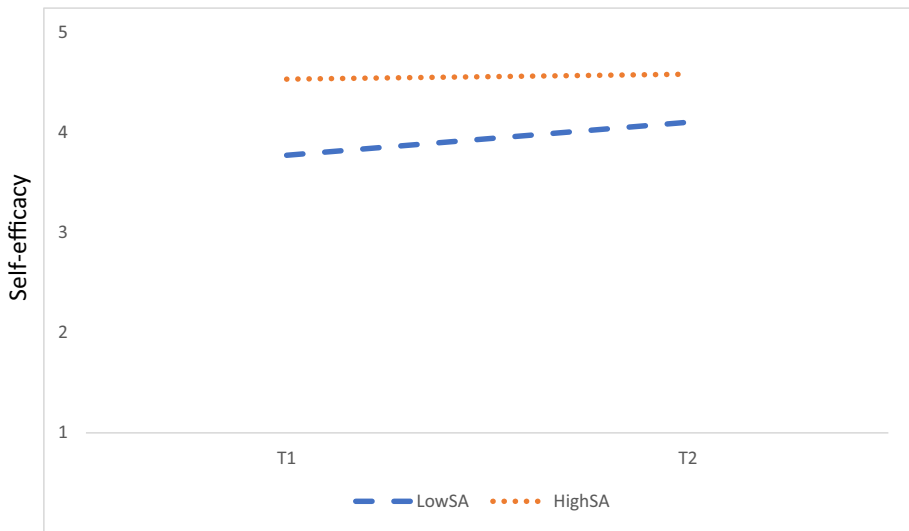


Fig. 5 Self-efficacy development for high failure experience students, by high/low teacher self-aspect importance

self-aspect importance, this negative prediction was very high and significant ($\beta = -.58, p < .001$).

About 15% of our sample (19 out of 124 student teachers) was in the group with low teacher self-aspect importance. About 18% of the sample (23 out of 124 student teachers) belonged to the other group, namely, students reporting high teacher self-aspect importance. Figure 4 displays the change in self-efficacy as a function of internship failure experience for these two groups.

To illustrate this result, we took into account only students who reported high internship failure experience and analysed the change in self-efficacy separately for those with low and high teacher self-aspect importance. Despite the overall average increase in student self-efficacy during the internship, we can see that the situation was somewhat different for students who combined high teacher self-aspect importance with high internship failure experience (high-self-aspect/high-failure students), who did not show any real increase in their self-efficacy after the internship (Fig. 5).

In sum, while an overall increase in student teachers' self-efficacy was observed following the internship, this increase was not apparent among student teachers who combined a failed internship experience with high importance attributed to their teacher self-aspect. This makes them a more vulnerable group of students. According to the results of this study, this can be explained by the very important impact of a lived experience of failure in a placement on the construction of self-efficacy beliefs for these students who assign high importance to their teacher self-aspect.

Discussion and conclusion

This study examined changes in student teachers' self-efficacy after their first internship by considering the effect of failure experience and teacher self-aspect importance. Several interesting results emerged.

First, the results show that prior to their very first placement, the students in our sample had high self-efficacy and that they placed high importance on their teacher self-aspect.

Second, we found an increase in student teachers' self-efficacy beliefs following their first teaching assignment. They reported being more confident about their teaching after this first experience in the field than before. These supports result from previous studies, which also observed an increase in self-efficacy after student teaching (Hoy & Woolfolk, 1990; Kaldi, 2009; Knoblauch & Woolfolk Hoy, 2008; Tsouloupas et al., 2010; Hoy & Spero, 2005).

Third, teacher self-aspect importance does not directly influence the construction of self-efficacy beliefs. On the other hand, considering this importance as a moderator of the change in self-efficacy allows us to better explain the change in self-efficacy at the end of the internship. This finding is in line with the work addressing the process at play between the sources of self-efficacy information and self-efficacy beliefs (Devos, 2013; Brewer, 1993; Lutz & Ross, 2003). Our results support the idea that self-aspect could be considered one of the cognitive processes suggested in self-efficacy theories to moderate the effect of the sources of self-efficacy information on one's sense of efficacy. In this sense, depending on the importance that is given to teacher self-aspect, failure experience during the practicum will be interpreted differently and will have a differential impact on the student teachers' self-efficacy, as shown by the results of this study.

Fourth, a vulnerable group that requires attention emerged from our study. These are student teachers who combine a failed internship experience with high teacher self-aspect importance. For them, the internship does not act as a key to development of self-efficacy, whereas it does for other students.

Finally, our study did not pursue a methodological objective by trying to refine the concept of self-efficacy; instead, adding an item outside of the three commonly used dimensions of teachers' self-efficacy (instruction, classroom management, student engagement) referring to relations with colleagues roots our study in recent trends in teacher research. These trends present the teaching profession as related not only to the classroom and the students, but also to relational and collaborative interactions with colleagues (Coppe et al., 2021). As argued by several scholars, further research could reconceptualize teachers' self-efficacy by taking into account all aspects of the teaching profession, and not just the aspects related to the classroom and students (März & Kelchtermans, 2020; Tang et al., 2016).

This study has several limitations. First, our sample size could be larger to enhance the power and accuracy of the analyses carried out. Second, our participants were students who responded voluntarily, so we do not know what other students think. Third, our approach was purely quantitative; these relationships would be worth pursuing with a qualitative approach. Fourth, we chose to take an individual approach by considering self-efficacy predictors at the individual level. Taking into consideration the school context might refine our understanding of students' failure experiences. This could be also done with interviews asking students about the meaning they attribute to their failure experience. Fifth, the perceived failure experience measure is a self-reported scale. We could imagine that some students are not able to self-evaluate themselves correctly. Finally, we did not collect a third

round of data at some point after the internship to analyse whether their negative reaction was temporary or if it was more permanent. This third measurement could be combined with an intervention trying to support students who might be at risk after their internship.

Nevertheless, this study raises questions about the profile of these more vulnerable students. They were highly self-identified with an activity at which they then perceived themselves to fail. One could therefore suppose that they had a false image of what the job was, that they are not in the right line of work, and that they are unlikely to become successful professionals. However, they may also be promising teachers, committed and motivated, who have only faced a minor setback. Because of their high teacher self-aspect importance, they might also judge themselves more critically and expect more of themselves during the internship, and therefore what they consider as a failure might not actually have been a real failure.

Their strong identification with the teacher role may also have led them to set overly high standards for themselves, which inevitably led them to consider their student teaching experience as a failure. And because they think in this way, they might also be led to work harder and to believe that there are things they could do to improve, whereas those who already believe themselves quite capable might see no need to work to improve themselves.

In a perspective that seeks to support all students entering training (Van Nieuwenhoven et al., 2021), it seems necessary to find ways to support this “high teacher self-aspect–high internship failure” group of student teachers. On the one hand, student teachers need to have a realistic estimate of their performance during student teaching, and they need to identify their strengths and weaknesses, their successes, and failures, as accurately as possible. In this sense, the sustained work of reflective analysis would allow these students, along with those in other profiles, to be able to target their strengths and difficulties. Indeed, making students reflexive means enabling them to make explicit what has been done, to distance themselves from what has been done, and to find solutions (Colognesi et al., 2019, 2021; Derobertmeasure, 2012). In addition, reflexivity plays a transformative role in questioning and regulating one’s practices (Paquay et al., 2004).

Furthermore, there is no point in telling a future teacher that their performance was great if that was not the case. On the other hand, it *is* necessary to help them to recover from these difficulties. More specifically, an interesting way to help students take a step back and regain control of the situation is to get them to clarify what happened. Research on the processing of autobiographical information (Philippot et al., 2007) has suggested that when people are confronted with difficult past or future situations and intense negative emotions (e.g. trauma, poor performance, future challenge), they tend to avoid thinking about this information or to consider it in a general way. However, helping the individual to detail specific aspects of the situation, to go through it to make sense of it, and to process the information focusing on what is unique or specific to that situation is associated with better emotion regulation, better control of the situation, and stronger self-efficacy beliefs. Helping student teachers in this way can therefore lead them to acquire a more realistic view of their teaching performance.

Finally, with regard to attribution theory (Frieze, 1980; Graham & Folkes, 1990), helping the students to attribute their difficulties to internal unstable causes (e.g. effort) rather than internal stable factors (e.g. ability) is also likely to let them regain trust in their capability to modify their performance and progressively to become successful professionals, through work and effort, trials and errors, practice, and reflection. Finally, work can be done on the student teachers’ goal orientation (Marsh et al., 2003). Indeed, a goal structure in the pre-service education environment oriented towards mastery goals may help the future teacher to adopt this view and to consider the difficulties experienced as challenges and opportunities for future development, rather than as evidence of their lack of teaching ability.

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Current themes of research

Thibault Coppe: Teachers' professional development.

Christelle Devos: Early career teachers; Doctoral students.

Stéphane Colognesi: Learning and instruction; Teacher education; Effective teaching practices.

Most relevant publications

Thibault Coppe:

Coppe, T., März, V., Coertjens, L., & Raemdonck, I. (2021). Transitioning into TVET schools: An exploration of second career teachers' entry profiles. *Teaching and Teacher Education*, 101, 103317.

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