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Novice teachers' professional development during the induction year

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Abstract

The key problem of the current study can be worded as the question: what are the changes that occur in novice teachers' development during the first year of work? The data sources include novice teachers' and their mentors' responses to the questionnaires focusing on changes in teacher competencies and self-efficacy beliefs during the induction year. The teaching skills of the novice teachers grew during their first year at work and their assessments were reasonably adequate. Self-efficacy grows through positive experiences of own classroom teaching. Novice teachers with high self-efficacy were more satisfied with their coping in the first year at work than the teachers with average and low self-efficacy. Positive first experiences and strong sense of efficacy are important from the viewpoint of the future career.

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Key words: Novice teachers, professional skills, self efficacy, induction year

1. Introduction

In autumn 2004, the induction year program was implemented in Estonia with the aim to help novice teachers adapt to their school culture and to support their professional growth as teachers.

The current study is based on the interest in investigating the transition of pre-service teachers from university life into full time teaching in a classroom. The first year of employment has been considered critical, because this year is the time when the concept of oneself as a teacher develops so that the experience and knowledge gained from this experience significantly influences the future professional development of the teacher (Calderhead & Schorrock, 1997).

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An important factor when reflecting on and improving his or her work as a teacher is the motivation to grow. A key piece of this motivation is a sense of self-efficacy (Bandura, 1997; Tschannen-Moran et al., 1998) – the belief that they can make a difference in the lives of their students, in their schools, and in their communities. According to Colton and Sparks-Langer (1993:50) without such a belief, teachers will not be motivated to examine their own practice and look for deeper meaning. According to research, perceived self-efficacy is a strong predictor of behavior (Bandura, 1997; Tschannen-Moran et al., 1998). Teacher efficacy, as a motivational construct, proposes that level of efficacy affects the amount of effort a teacher will expend in a teaching situation and the persistence a teacher will show in the face of obstacles. Teacher efficacy has been linked also to level of teachers' professional commitment (Tschannen-Moran et al., 1998:223).

Another important factor consists of professional competences. In order to cope, a teacher requires relevant knowledge and skills with respect to the subject matter and curriculum (content knowledge), the students they teach (knowledge of learners) as well as the general rules and principles of learning and teaching (pedagogical knowledge). Further, teachers must also consider the context (context knowledge). Context includes time of day; the cultural backgrounds and community; and school, district and regional politics (Colton & Sparks-Langer, 1993). Furthermore, teachers must have the ability and skills to analyze their behavior and the understandings and values underlying it because analysis serves as a basis for change and improvement of teaching practice (knowledge of self).

Competencies are generally conceived of as an integrated body of knowledge, skills, and attitudes. As such they represent a potential for behavior, and not the behavior itself. According to Korthagen (2004:80) whether the competencies are really put into practice, i.e. expressed in behavior depends on the circumstances because teacher competencies are determined by the environment but also by his or her belief. Competencies and beliefs are interconnected: beliefs start to change as soon as people experience that they possess or can develop the competencies to have a much greater impact on other people's learning than they thought was possible (Korthagen & Vasalos, 2005:68). The beliefs, in turn, affect the degree to which we actually realise our competencies. Positive coping and feedback has a positive influence also on self-efficacy beliefs, leading to willingness to apply one's competencies to the fullest and improve them further.

The objective of this study was to analyze novice teachers' professional development during the induction year. More specifically, it aimed to describe novice teachers' and their mentors' perceptions of novice teachers' development and experience of learning to teach in their first year of work. The main tasks of the study were as follows:

1. To describe novice teachers' perceptions about their teaching competencies and self-efficacy beliefs across the first year of work as a teacher and ascertain what changes occurred in these during the school year.
2. To compare novice teachers' and their mentors' perceptions about novice teachers competencies across the school year.

2. Method

58 novice teachers from the cohort of 145 who completed questionnaires on three occasions – at the end of the first, second and forth semesters and their mentors participated in the study. The sample of novice teachers included 54 females and 4 males, age ranged from 22 to 32 years. The surveyed group also included 48 mentors of novice teachers, all of them were women. Mentors ranged in age from 28 to 61 and had an average of 22 years experience as teachers.

Questionnaires. Items designed to measure the teachers' perceptions of the competencies (37 items) were

developed on the basis of the professional skills described in the teacher's standard (Õpetaja V, 2005). The skills describing teachers' main activities which were included in the scale of professional abilities, were grouped into three big blocks – planning, management of the learning process, cooperation and professional growth. The teacher's self-efficacy scale consists of 27 items. Although the global construct of teachers' self-efficacy was of primary interest in this dissertation, the items used in the scale were grouped in the way that they would reflect three aspects of teachers' self-efficacy: Self as a Teacher, Self as a Learner, and Self as a Colleague. The three sub-scales of the questionnaire include activities that reflect the teacher's belief in his/her ability to cope with teaching the students (Self as a Teacher), setting goals for his/her own work and learning from it (Self as a Learner) and willingness to ask feedback from the colleagues and learn in cooperation (Self as a Colleague).

Data analysis. The first step was to conduct internal consistency analyses for the competency and self-efficacy scale as well as for competency and self-efficacy subscales. All scales showed satisfactory internal reliability. The next step consisted in summing up the basic characteristics of the competency scale to get new summary variables for planning, management of the learning process, and professional growth. Similar to the block of questions about professional competences, the three subscales of self-efficacy were summed up to get new summary variables. To determine how novice teachers' perceptions of their own competences in planning, management, and professional growth as well their perceptions of their self-efficacy beliefs changed during the induction year a series of one-way within subjects analyses of variance (ANOVA) was conducted. To compare mentor and novice teacher ratings the correlation analyses were conducted.

3. Results

3.1. Novice teachers' evaluations of the development of their professional skills during the induction year

Analyzing the changes in the means of the first, second and fourth term in all three subscales of professional skills it appears that the evaluations given in the first and second terms do not differ significantly but substantial differences appear when we compare the ratings given in the first and last term. The means and standard deviations for planning, management of the learning process, and professional growth competences for each of the assessment period are presented in table 1.

Table 1. Descriptive statistics for the professional skills subsets planning, management, and professional growth in Term1, Term 2 and Term 4.

		Planning	Management of the learning process	Professional growth and cooperation
Term I	N	55	55	54
	Mean	20,69	45,47	42,61
	Min	14	30	24
	Max	27	58	57
	Std Dev	2,61	5,49	6,51
Term II	N	56	54	51
	Mean	21,11	45,94	43,43
	Min	16	36	31
	Max	27	57	56
	Std Dev	2,63	5,08	5,75

Term IV	N	56	51	49
	Mean	23,43	49,29	45,24
	Min	18	39	29
	Max	28	57	56
	Std Dev	2,47	4,76	5,54

Planning

A repeated measures one-way ANOVA revealed that there were significant differences in planning between the three times of measurement, ($F(1,50) = 64,66, p < .001$), though this was a relatively small effect size ($\eta^2 = .564$). Last significant difference (LSD) comparisons revealed that two means were significantly different from each other. The mean of planning was significantly higher at the end of the school year ($M = 23.57$) than at the beginning ($M = 20.76$). The mean planning score of the second term was not significantly higher ($M = 21.20$) than the planning score from the first term, but significantly higher than the mean planning score at the end of the fourth term.

Management of the learning process

A repeated measures one-way ANOVA revealed that there were significant differences in ratings given by novice teachers to their management skills across the three times of measurement, ($F(1,45) = 30,22, p < .001, \eta^2 = .402$). The effect size was small to moderate. LSD comparisons revealed that two means were significantly different from each other. The mean of learning process management was significantly higher at the end of the school year ($M = 49.30$) than at the beginning ($M = 45.50$). The mean management score of the second term was not significantly higher ($M = 46.37$) from the management score from the first term, but significantly higher than the mean management score at the end of the fourth term.

Professional growth

A repeated measures one-way ANOVA revealed that there were significant differences in novice teachers' rating to their professional growth and cooperation skills between the three times of measurement, ($F(1,43) = 14.76, p < .001, \eta^2 = .256$), though this was a relatively small effect size. LSD comparisons revealed that two means were significantly different from each other. The mean of professional growth and cooperation was significantly higher at the end of the school year ($M = 45.36$) than at the beginning ($M = 42.30$). The mean score of the second term for professional growth and cooperation was not significantly higher ($M = 43.52$) from the professional growth and cooperation score from the first term, but significantly higher than the mean score at the end of the fourth term.

In order to get feedback about how adequately novice teachers evaluated their professional competences, every term while observing lessons, mentors were also asked to assess the skills of novice teachers. Similarly to the questionnaires completed by novice teachers, the questionnaire for mentors was also based on the set of items concerning teachers' professional skills. The means and standard deviations in the completed questionnaires for planning, management, and professional growth competences for each of the assessment period are presented in table 2.

Table 2. Descriptive statistics of mentors' ratings for novice teachers planning, management, and professional growth competences in Term 1, Term 2 and Term 4.

		Planning	Management of the learning process	Professional growth and cooperation
Term I	N	20	20	19

	Mean	20,70	45,70	46,47
	Min	15	35	33
	Max	28	60	60
	Std Dev	3,05	5,97	6,83
Term II	N	22	26	24
	Mean	22,00	47,50	48,13
	Min	17	38	38
	Max	27	57	59
	Std Dev	2,47	5,16	5,47
Term IV	N	40	41	39
	Mean	23,38	49,80	48,92
	Min	17	39	37
	Max	28	60	60
	Std Dev	2,58	5,28	5,68

While analyzing the mentors' evaluations of the professional competences of novice teachers on the basis of the planning and management of the learning process subscale, the following results were obtained.

A repeated measures one-way ANOVA revealed that there were significant differences in ratings given by mentors to the novice teachers' planning between the three times of measurement, ($F(1,11) = 7.00, p < .023, \eta^2 = .389$), though this was a relatively small effect size. LSD comparisons revealed that two means were significantly different from each other. The mean of planning was significantly higher at the end of the school year ($M = 22.67$) than at the beginning ($M = 20.33$). The mean planning score of the second term was the same as at the end of the last term ($M = 22.67$), which means that there were no significant differences between the second and last term, but there were significant differences between the mean planning score in the first and second term.

Although both novice teachers and mentors rated the learning process management skills higher at the end of the year, differently from novice teachers, the mentors observed the development in this field throughout the whole year. A repeated measures one-way ANOVA revealed that there were significant differences in ratings given by mentors to the novice teachers' learning process management skills across the three times of measurement, ($F(1,13) = 21.84, p < .001$), though this was a relatively small effect size ($\eta^2 = .627$). LSD comparisons revealed that all three means were significantly different from each other. The mean of management of the learning process was significantly higher at the end of the school year ($M = 50.36$) than at the beginning ($M = 44.43$). The mean management score (learning process) of the second term was also significantly higher ($M = 47.57$) from the management score from the first term and significantly lower than the mean management score at the end of the fourth term.

At the same time mentors' ratings to novice teachers' professional growth and cooperation did not have any statistically substantial differences across the year. The fact that mentors did not notice the changes in the development of novice teachers during the school year might be connected with the aspect that the professional growth and cooperation subscale questions concentrate mostly on the cooperation between mentors and novice teachers and as at the start of the school year both parties got to know each other, the development in the cooperation field was not noticed. On the other hand, the reason that mentors did not notice the changes in the development of novice teachers in the field of professional growth and cooperation might be the fact that the cooperation between mentors and novice teachers was predominantly limited to the so called compulsory activities

expected to be completed during the induction year and did not evolve into a continuous collegial co-operation. An overview of the comparison of mentors' and novice teacher's evaluations about novice teachers' professional growth and cooperation skills during the induction year are presented in figure 1.

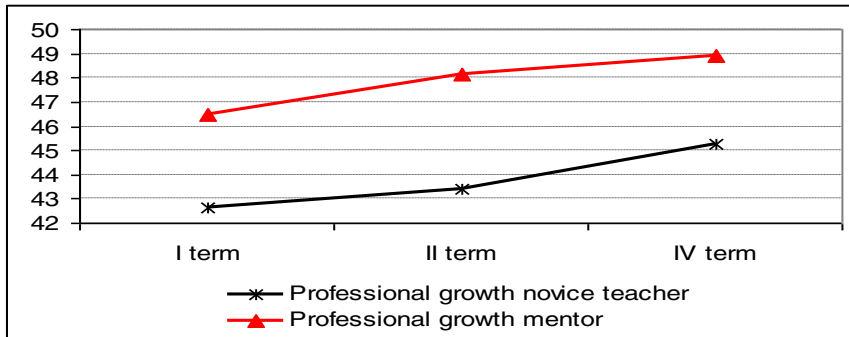


Figure 1. Comparison of mentors' and novice teacher's evaluations about novice teachers' professional growth and cooperation skills during the induction year

To sum it up, it can be said that while mentors noticed the novice teachers' development in planning mostly between the first and the second term, the novice teachers perceived their own development between the second and the third term. Mentors did not see any substantial change in the development of novice teachers' planning skills from the end of the second term till the end of the school year (Figure 2).

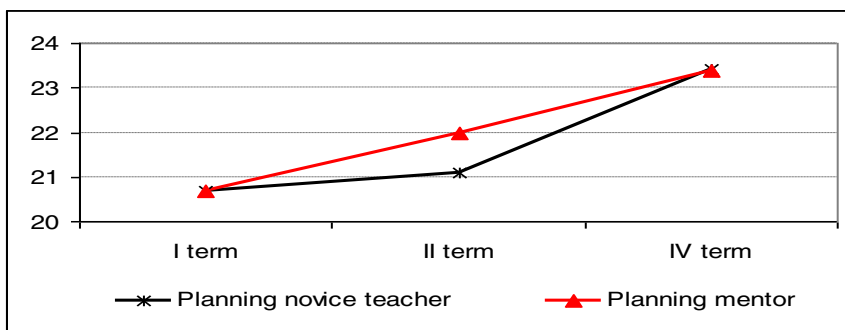


Figure 2. Comparison of mentors' and novice teacher's evaluations about novice teachers' planning skills during the induction year

Management of the learning process, which is the most problematic field for novice teachers, developed in the eyes of mentors throughout the year, this means that substantial differences could be seen in mentors' evaluations every term. At the same time the novice teachers perceived big changes in their learning process management skills particularly between the second and the third term (Figure 3).

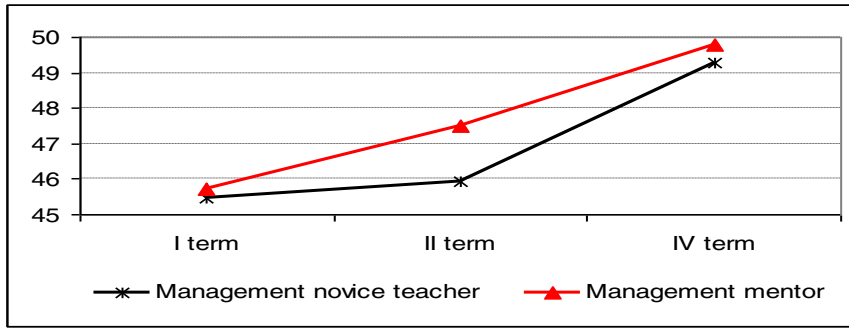


Figure 3. Comparison of mentors’ and novice teacher’s evaluations about novice teachers’ learning process management skills during the induction year

In order to find out how much the novice teachers’ and mentors’ evaluations of their professional competences coincided, correlation analyses were carried out. Relying on these analyses it can be said that when during the year novice teachers and mentors perceived the development of the professional skills in different categories slightly differently, then at the end of the year their evaluations were more similar. The correlation could be seen in the novice teachers’ and mentors’ evaluations in the last term in both the planning ($r=.50, p<.01$) and the professional growth and cooperation ($r=.53, p<.01$) categories. During the first and second term no correlation was found between the novice teachers’ and mentors’ evaluations when it comes to their planning and learning process management skills. The only additional correlation was found in the ratings to professional growth and cooperation skills in the evaluations during the second term ($r=.51, p<.05$).

Relying upon the correlations between the ratings of mentors and novice teachers, it can be said that the self-evaluations of novice teachers about the development of their professional skills were similar to those of the mentors. This may indicate that novice teachers were reasonably adequate in assessing their competencies during the first school year.

3.2. Changes in novice teachers’ self-efficacy beliefs during the induction year

The novice teachers in the survey were asked to rate their self-efficacy beliefs in the first, second and fourth term. Similarly with the professional skills subscale, a variable – self-efficacy – was derived from the items in the questionnaire related to teachers’ self-efficacy. The overall means and standard deviations for self-efficacy for each of the assessment periods are presented in table 3.

Table 3. Descriptive statistics for self-efficacy beliefs scale in Term1, Term 2 and Term 4.

	Self-efficacy beliefs				
	N	Mean	Min	Max	Std Dev
Term I	55	107,33	85	123	7,76
Term II	56	105,88	83	125	8,66
Term IV	54	109,26	80	121	7,65

Similarly with the results related to professional skills, when comparing teachers’ ratings given at the beginning and the end of the year, it appears that teachers have a stronger belief in their teaching abilities as well in their self-efficacy at the end of the school year. Novice teachers also perceive a change in their self-efficacy

beliefs particularly after the second term.

A repeated measures one-way ANOVA revealed that there were significant differences in ratings given by novice teachers between the three times of measurement, ($F(1,51) = 6.46, p < .014, \eta^2 = .112$), though this was a relatively small effect size. The mean of the self-efficacy scale was significantly higher at the end of the school year ($M = 109.4$) than at the beginning ($M = 107.1$). There were no significant differences between the mean self-efficacy score of the second term ($M = 105.9$) and first term, but there were significant differences between the mean self-efficacy score in the second and last term.

It was presumed on the basis of the models describing novice teachers' growth during the induction that there will be a slight drop in teachers' self-efficacy beliefs at the end of the second term when the idealism and energy connected with starting work tend to grow weaker and the load of routine duties and problems increases, making teachers doubt about their abilities (Moir, 1999). Although the mean ratings of self-efficacy of the second term are lower than the first and the last terms the difference is statistically not significant. At the same time an interesting tendency appeared in the analysis of the subscales of self-efficacy beliefs. Statistically substantial differences emerged in two subscales during the year: *Self as a Teacher* and *Self as a Learner*. In the subscale *Self as a Learner* there was a clear decline in the self-efficacy beliefs of novice teachers particularly after the first term. A repeated measures one-way ANOVA revealed that there were significant differences in ratings given by novice teachers across the three times of measurement, ($F(1,55) = 7.10, p < .010, \eta^2 = .114$), though this was a relatively small effect size. LSD comparisons revealed that there were significant differences between the first and last term. The mean of self-efficacy subscale *Self as a Learner* was significantly higher at the beginning of the school year ($M = 47.1$) than at the end ($M = 45.7$). There were no significant differences between the second term and at the end of the school year ($M = 46.7$) as well as there were no significant differences between the beginning and the end of the school year. The questions of the subscale *Self as a Learner* concentrate mostly on personal contribution and readiness to learn from one's job and on coping strategies, which should support personal professional development. For example: *I believe problems are challenges to learn; My professional success depends on my own efforts only; I feel I can achieve professional goals; I believe that self-analysis helps to improve my work*. Several models describing the development of novice teachers state that particularly after the first term the self-belief of teachers about coping and succeeding starts to waver; thus it might be the reason why in the given survey the novice teachers' evaluations in the self-efficacy subscale *Self as a Learner* were substantially lower after the first term. At the same time, in case of the self-efficacy subscale *Self as a Teacher*, novice teachers evaluated the changes during the induction year similarly to professional competences, i.e. a change to the better was perceived particularly after the second term. The questions in the self-efficacy subscale *Self as a Teacher* are linked with teaching in the classroom, thus similarities to the management (of learning process) subscale can be found to some extent. A repeated measures one-way ANOVA revealed that there were significant differences in ratings in the self-efficacy subscale *Self as a Teacher* given by novice teachers between the two times of measurement, ($F(1,52) = 25.83, p < .001$), though this was a relatively small effect size ($\eta^2 = .332$). Last significant difference comparisons revealed that two means were significantly different from each other. The mean of the subscale *Self as a Teacher* was significantly higher at the end of the school year ($M = 37.7$) than at the beginning ($M = 35.2$). The mean score of *Self as a Teacher* subscale of the second term was also significantly higher ($M = 35.5$) than the score from the last term but there were no significant differences between the first and second term. It is interesting to note that throughout the year there were no statistically substantial changes in the subscale *Self as a Colleague*, although one could have assumed that when becoming adjusted to the organization and learning to know oneself and one's colleagues better, the ratings given to the self-efficacy beliefs would rise at the end of the year.

In order to examine the connections between the ratings of self-efficacy and the ratings of professional skills, three groups were formed of the sample – the first group consisted of novice teachers who gave a high rating to their self-efficacy beliefs, teachers in the second group gave an average rating to their self-efficacy and teachers in the third group rated their self-efficacy beliefs low. Group formation was based on frequency distribution.

While comparing the novice teachers groups with high, average and low self-efficacy beliefs, it appeared that there were significant differences between the groups in the subscale of planning ($F=7,85$; $p < .01$) and the subscale of management of the learning process ($F=19,09$; $p < .01$) as well the subscale of professional growth ($F=10,13$; $p < .01$). Difference between the groups with low and average as well average and high ratings in the subscale of planning was not significant, but the difference between the groups with low and high ratings was significant ($p < .01$). Statistically significant differences emerged between all the groups in the field of professional skills usually causing most problems to novice teachers –management of classroom ($F= 19,09$; $p < .01$). Statistically significant differences emerged between all the groups also in subscale of professional growth ($F=10,13$; $p < .01$). The means and standard deviations in the assessment of their own professional skills by teachers with different levels of self-efficacy have been summarized table 4.

Table 4. The means and standard deviations between low, average and high efficacy teachers' ratings according to their professional skills

Ratings to their self-efficacy:	Planning skills			Management skills			Professional growth and cooperation		
	M	Sd	N	M	Sd	N	M	Sd	N
1. Low	21,88	1,93	17	45,13	4,13	14	41,87	3,48	15
2. Average	23,35	2,00	17	49,82	3,13	17	45,69	3,52	16
3. High	24,78	2,49	18	52,82	3,15	17	48,73	5,34	15

Thus, the higher the self-efficacy rating, the higher the rating of professional skills. This is not surprising because according to Bandura (1997) self-efficacy beliefs are the strongest predictors of human motivation and behavior, which comprise people's beliefs about their capabilities to exercise control over events that affect their lives and individuals' estimations of their competence to execute given tasks.

It is interesting that contrary to some other findings where the self-efficacy beliefs of novice teachers during the first year of work dropped (e.g. Tschannen-Moran et al., 1998; Woolfolk Hoy, 2000), teachers' self-efficacy beliefs increased at the end of the year. In the present research the higher level of self-efficacy beliefs at the end of the year may be connected with the higher-assessed rating of professional skills. According to Bandura (1997) mastery experiences are the most powerful source of efficacy information. The perception that a performance has been successful raises efficacy beliefs, which contributes to the expectation that performance will be proficient in the future. Chester & Beaudin (1996) found in their study, that certain school practices in addition to success experiences in teaching apparently contributed to increased efficacy among the newly hired teachers. For example the number of supervisor's observations affected novice teachers' self-efficacy beliefs. In Chester and Beaudin (1996) study novice teachers who were observed 5 times during their first year show positive changes in self-efficacy beliefs, whereas for teachers who were not observed the shift was negative. In compliance with the induction program being implemented in Estonia, a mentor has the obligations to observe at least two lessons given by a novice teacher in each term which makes altogether at least 8 observations by mentors during novice teachers' first working year.

4. Summary

As teachers' professional skills improve during the induction year, with this improvement the rating of their competencies also increases. At the same time, novice teachers themselves perceived the development of their professional skills occurred primarily after the second term and not between the first and the second term. This might be connected with the period of adaptation at the beginning of the school year. This is the time when one's self-conception as a teacher is built up, when novice teachers become adjusted to their pupils, mentors, colleagues and the school as an organization and when the first difficulties in the teacher's job usually emerge (e.g. Kagan 1992; Villani 2002). Therefore it is hard to reflect one's professional development. Probably by the end of the second term novice teachers establish certain stability in their everyday work and it is possible that this is why they perceived changes in their professional development after the second term.

Positive changes in novice teachers self-efficacy beliefs are probably connected with the higher-assessed rating of professional skills as so called mastery experiences are the most powerful source of efficacy information (Bandura, 1997). It is also possible that certain school practices, such as presence of a mentor who conducts lesson observations and analyses, and support provided by schools had a positive impact on the self-efficacy beliefs of novice teachers. Even though international research implies that the support provided in the context of the induction year has a positive effect on teachers' self-efficacy beliefs, connections between the factors in the school environment and teachers' self-efficacy beliefs would need further and more thorough investigation. It is nevertheless clear that teachers with positive self-efficacy have a better opinion of their own professional skills and are more satisfied with their coping as teachers in the first year. Positive first experiences and satisfaction with one's own coping in the first year, in turn, are positive factors from the viewpoint of the future professional development and professional assurance of the novice teacher.

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