

The relationship between perceived professional self-efficacy of lower secondary school teachers and “My Academic Subject” questionnaire evaluations of their teaching quality

Michal Novocký¹
Renáta Orosová²
Lenka Rovňanová³

¹ Department of Pedagogy, Faculty of Arts, Pavol Jozef Šafárik University in Košice, Moyzesova 9, 040 01 Košice; michal.novocky@upjs.sk

² Department of Pedagogy, Faculty of Arts, Pavol Jozef Šafárik University in Košice, Moyzesova 9, 040 01 Košice; renata.orosova@upjs.sk

³ Department of Pedagogy and Andragogy, Faculty of Education, Matej Bel University in Banská Bystrica, Ružová 13, 974 11 Banská Bystrica; lenka.rovnanova@umb.sk

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Abstract The perceived self-efficacy of the teacher is a decisive constituent involved in increasing the effectiveness of teaching (Künsting et al., 2016; Mojavezi & Tamiz, 2012). The teacher's confidence in his or her professional skills and abilities strengthens his or her self-image and often becomes a protective factor when dealing with unfavorable circumstances with students in the educational process. The aim of the study was to analyse the relationship between the perceived self-efficacy of teachers and their evaluation of teaching quality. We used an adapted version of the OSTES (Ohio Teacher Efficacy Scale) questionnaire (Gavora, 2012a) to monitor the perceived self-efficacy of teachers. We verified its two-factor model (self-efficacy in the application of teaching strategies and self-efficacy in classroom management) through confirmatory factor analysis (maximum likelihood method), which demonstrated good values of fit indices (CFI, TLI, RMSEA, SRMR, and GFI). The value of Cronbach's alpha testified about the optimal internal consistency of both dimensions and the entire instrument. To monitor the quality of teachers' teaching, a self-proven “My Academic Subject” questionnaire was used, the validity of which was determined using exploratory factor analysis (principal component analysis, promax rotation). Finally, a uni-dimensional solution proved to be the most suitable (although we originally considered 4 dimensions). Similarly, as in the case above, the internal consistency of this instrument, demonstrated by the value of Cronbach's alpha, was acceptable after the elimination of items reducing its level. The research group consisted of 342 lower secondary school teachers who taught seventh-grade students. Their average length of practice was 15.76 years (SD=10.03). A statistically significant moderately strong positive relationship between the perceived self-efficacy of teachers in the application of teaching strategies and the quality of teaching and a statistically significant weak positive relationship between the perceived self-efficacy of teachers in classroom management and the quality of teaching were identified. Based on the partial results of the research, we identified a statistically significant difference in the perceived self-efficacy of teachers in the application of teaching strategies in terms of obtaining a qualification. Another statistically significant difference was identified in the quality of teaching in terms of the teacher's sex and the prevalence of Roma students in teaching. Only

in the last case was the moderate substantive significance of the difference demonstrated. The findings indicate that the teacher's belief in his or her potential to manage the educational activities (mainly adequately exploiting the selected teaching resources) can be one of the factors that increase the quality of teaching, however, taking into account the ambiguous construct validity of the “My Academic Subject” research instrument, further research should either be realised with the mentioned instrument on a more heterogeneous sample, or an instrument with a different dimensional structure should be used.

Keywords Lower secondary school, quality, self-efficacy, teacher.

1. INTRODUCTION

Professional self-efficacy is an individual's confidence in his or her ability to organise and execute the actions necessary to achieve certain outcomes. It is a key component of learning and motivation theories in different contexts (Artino, 2012). According to Bandura (1997), a representative of cognitive psychology it functions as a set of determinants of self-regulation. It is an inseparable part of teaching, as teachers assume multiple roles at the same time (didactic, diagnostic, facilitator, motivator, examiner, etc.), and the quality of their performance is expected to have an impact on students' learning outcomes. Apart from the level of development of the teacher's professional competences, the normative framework of the educational process, and management of educational problems, the success of teaching, from its planning to its assessment, is also influenced by the teacher's professional self-efficacy. Nikodémová et al. (2017), reflecting on the research results obtained in Slovakia and abroad, summarize that teachers with higher professional self-efficacy tend to experiment in teaching, overcome obstacles, show enthusiasm, and strive to motivate students to learn. Bong and Skaalvik (2003) argue that professional self-efficacy actively precedes the development of self-perception (which is an essential component of teacher's professional development). The available research explicitly shows the benefits of perceived professional self-

efficacy for teachers as well as for the educational process and students. Xiyun et al. (2022) confirmed that professional self-efficacy and emotional regulation in teachers were important predictors of their psychological well-being, professional self-efficacy being a stronger correlate. Türkoğlu et al. (2017) arrived at the same conclusion; moreover, they declared that teachers' professional self-efficacy was an important predictor of their work satisfaction. The study of Abun et al. (2021) had similar results. In their longitudinal study, Künting et al. (2016) confirmed that teacher's professional self-efficacy is relatively stable and appears to be a long-term predictor of classroom teaching quality (e.g. classroom climate, classroom management). In the research performed by Jang et al. (2019), all professional self-efficacy dimensions significantly correlated with the CLASS Instructional Support subscale (feedback quality, instructional dialogue, etc.).

The study by Mojavezi and Tamiz (2012) showed that teacher's professional self-efficacy positively influences students' motivation and success rate. Barni et al. (2019) emphasize that teachers' confidence in their ability to fulfil their obligations and meet educational challenges plays an important role in influencing students' academic performance. It is clear that professional self-efficacy impacts the quality of school education (teaching). Its quality can be perceived via different aspects such as students' success rate or other variables reflecting, for example, how students feel at school, whether they like going to school, or their inclusion in the classroom collective (Blaško, 2013; Rovňanová, 2013; Rovňanová & Nemcová, 2017; Turek, 2015). Moreover, teachers and students' perception of a given academic subject also seems to play a role. Hrabal and Pavelková (2010) observed teachers' perceptions of how students saw selected academic subjects from the viewpoints of liking, difficulty, importance, and performance. Supportive classroom climate is important in terms of stimulating students towards more complex work and better performance. Another important variable in this context is the relationship between students in the classroom (conflicts, friction, tension, etc.) (Lašek & Mareš, 1991). The ability to teach is not restricted to mastering a set of skills to convey curriculum; the ability to manage relationships with others is as important (Bullough & Gitlin, 1994). A professional teacher assumes responsibility for educational decisions and actions, possesses expert knowledge of the subject didactics, has a positive attitude towards students, and creates individual teaching concepts (freely paraphrased according to Hopkins & Stern, 1996). Based on these findings, the authors seek to explore the relationship between teachers' professional self-efficacy and the aforementioned teaching quality indicators.

2. METHODOLOGY

The revised version of the adapted Ohio State Teacher Efficacy Scale (OSTES) was used to identify the perceived self-efficacy among teachers (Gavora, 2012a). This scale consists of 15 items formulated as questions; the respondents were supposed to provide their answers on a 9-point scale. For the purpose of this research, the scale was modified to comprise 5 degrees (nothing – very little – some influence – quite a bit/enough – a great deal) because it was completed only by secondary education teachers (ISCED 2 – 2nd stage of primary schools) who taught at least one subject to the 7th grade students. The questions addressed a specific academic subject (taught the first in a week) and the students' year of study, which made the task more complicated as it imposed limitations on the respondents (they had to consider the alternatives more carefully). The item "How much can you do for the most difficult students?" was explained in brackets as referring to students with learning disorders.

The decision to select a specific year for the respondents to address was prompted by the preliminary research on a sample of 162 teachers in Slovakia. Besides coming up with the idea to include further control variables, our respondents also brought our attention to the fact that since this research would be performed across the regions, the generalisation of its results could be problematic. The solution was to specify the research sample. The 7th grade of primary school was selected due to the following reasons: (1) the teachers had already known their 7th-graders for some time (they had worked with these children in the past as they attended primary or eight-year grammar schools); (2) after sample specification, the biggest possible number of respondents was secured. As of September 2016, the number of 7th graders was higher than that of the 8th and 9th-graders (7th grade – $n=40,673$; 8th grade – $n=38,490$; 9th grade – $n=35,126$). Based on this knowledge, it was assumed that the number of teachers who were teaching the 7th graders at the time had to be bigger as well. The data related to the number of students was obtained from the Statistical Yearbook of Education in Slovakia (www.cvtisr.sk).

We were already familiar with the structure of the OSTES research instrument, which includes the dimension of professional self-efficacy in the application of teaching strategies and the dimension of professional self-efficacy in classroom management. Therefore, we were able to proceed directly to construct validation using confirmatory factor analysis (maximum likelihood method). Model adequacy was evaluated using indices such as CFI – Comparative Fit Index (0.943), TLI – Tucker Lewis Index (0.930), RMSEA – Root Mean Square Error of Approximation (0.060), SRMR – Standardised Root Mean Squared Residual (0.046), and GFI – Goodness-of-Fit Index (0.929). However, index values were modified based on the residual covariance between 4 pairs of items within the same dimension. The values of the standardised factor loadings of the items were above 0.40. It can be stated that the proposed hypothetical model shows a good level of correspondence with the real data (Hair et al., 2010), although the statistical significance of the chi-squared test was confirmed ($p < 0.001$). The lower index values (not exceeding the cut off criterion of 0.95) could be caused by the aforementioned modification of the research instrument (scale range, specific focus on the 7th grade). Although the dimensions showed strong correlation ($r_s=0.577$), the uni-dimensional model did not prove to be suitable given the reported index values. The internal consistency of the dimensions was calculated using the Cronbach's alpha. In both cases, optimal internal consistency was confirmed (0.838, 0.828). The Cronbach's Alpha of the research instrument as a whole was 0.884, which is a good result.

A scale questionnaire of our own was used to measure the quality of teaching; it identified the students' interest in the subject, their conflicts during these specific classes, the subject difficulty, and the students' diligence to study the subject. This questionnaire can be characterised as autodiagnostic. It consisted of 20 items to which the respondents answered on a 4-point scale (1 – strongly disagree, 2 – disagree, 3 – agree, 4 – strongly agree). 5 statements were formulated to capture each dimension (For example – Students' interest in the subject: Students enjoy working in my classes. Students' conflicts: In my classes, students have no problem adapting to their classmates. Subject difficulty for the students: Students do learn the subject matter addressed in my classes. Students' diligence: Students put effort preparing for my classes every week.). 5 items in this questionnaire described negative situations to prevent the respondents from answering schematically and make them consider it for a moment (e.g. "In my classes, students give each other hard time."). The respondents were supposed to focus exclusively on their 7th graders. This instrument was modified in line with the pilot study and preliminary research,

and some statements were reformulated for greater clarity (e.g. “The students are happy in my classes.” – “Students like my subject.”).

Construct validation was performed using exploratory factor analysis (principal component analysis with promax rotation). Both 6 and 4-factor versions were considered. At first glance, diagonal rotation provided a better result than orthogonal rotation (more instrument items were retained); however, from the viewpoint of interpretation and generalisation of the grouped items, there was no significant change. Factor score correlations for the 4-factor alternative exceeded the 0.25 except in two cases ($r=0.248$, $r=0.119$) and the strongest correlation between factors was $r=0.481$. The uni-dimensional solution seemed the most suitable. KMO test for sampling adequacy rate (0.850) and Bartlett's test of sphericity ($p < 0.001$) indicated the appropriateness of applying factor analysis to the data obtained. After reverting the negative statements, the consistency of the instrument was evaluated. It was improved by eliminating the items that reduced the Cronbach's alpha value (originally, the Cronbach's alpha of the whole instrument was 0.399; afterwards, it was 0.812). Seven items were eliminated (Students are not bored in my classes. In my classes, students show interest even in most difficult tasks. In my classes, students give each other hard time. In my classes, only bright students are able to work well. In my classes, the teaching is quite demanding, the students do not meet my requirements. In my classes, students like to work with the learning material on their own. In my classes, students have no problem adapting to their classmates.). After removing each of these items, a new exploratory factor analysis was performed to observe changes in the arrangement of items within the dimensions and their factor saturation (the minimum factor load for an item to be included in one of the factors was 0.30). No significant changes have occurred (the arrangement of the items has not changed). Since factors are correlated, sums of squared loadings cannot be added to obtain a total variance (before the last rotation it was 56.48%). Nevertheless, it indicates the necessity to re-evaluate the concept of this instrument, analyse its items in more detail, and improve their semantic differentiation to ensure their better match to the respective factors. It could be caused by the specification of the research sample and/or the number of points in the scale (four points were probably insufficient to differentiate the respondents' answers with regard to the limitation to a specific grade).

The explicit wording of the items of both scale questionnaires is available at: https://docs.google.com/forms/d/1QX7OQZQF_IJGu7ZWZvNJKg0ppCCG8W8tFLT3Fhur4s/edit?pli=1.

2.1 Research sample

The research involved 372 participants from the whole Slovakia (January to March 2017). After removing respondents who did not match the target group and were unable to answer most questions and duplicates, the final sample was 342. An online questionnaire was opted for, and the participants were contacted by schools and headmasters emails. The research sample was obtained through purposive available sampling. A more detailed description of the sample structure can be found in Table 1.

2.2 Research hypotheses and questions

Based on the theory and existing research presented, the following hypotheses and questions were formulated:

H1: There is a statistically significant positive correlation between the perceived professional self-efficacy of teachers in the

application of teaching strategies and the quality of their teaching identified by the “My Academic Subject” questionnaire.

H2: There is a statistically significant positive correlation between the perceived professional self-efficacy of teachers in classroom management and the quality of their teaching identified by the “My Academic Subject” questionnaire.

RQ1: Is there a statistically significant difference in the perceived professional self-efficacy of teachers in the application of teaching strategies in terms of selected independent variables?

RQ2: Is there a statistically significant difference in the perceived professional self-efficacy of teachers in classroom management in terms of selected independent variables?

RQ3: Is there a statistically significant difference in the quality of teachers' teaching identified by the “My Academic Subject” questionnaire in terms of selected independent variables?

2.3 Data analysis

To evaluate the statistically significant relationships and differences between variables, non-parametric tests were used (Spearman's correlation coefficient, Mann-Whitney U test, Kruskal-Wallis test), since the variables were not distributed normally in the sets and subsets, which was verified by the Kolmogorov-Smirnov test and the Shapiro-Wilk test. The level of significance was 0.05. The value of the Spearman's correlation coefficient was determined based on De Vaus' classification (2002). The Eta-squared (η^2) was applied to determine the substantive significance of the differences. Its value was interpreted based on the cut off criteria specified in the online application Computation of Effect Sizes (Lenhard & Lenhard, 2016). As for descriptive statistics, arithmetic mean (AM) and median (Me) were applied. Statistical data analysis was performed using SPSS 20.0. and JASP 0.16.4. programs.

3. RESEARCH RESULTS

Based on the data shown in Table 2, it can be stated that there is a moderate statistically significant positive correlation between the perceived professional self-efficacy of teachers in the application of teaching strategies and the quality of their teaching identified by the “My Academic Subject” questionnaire ($r_s=0.368$, $p=0.000$). There is also a weak statistically significant positive correlation between the perceived professional self-efficacy of teachers in classroom management and the quality of their teaching identified by the “My Academic Subject” questionnaire ($r_s=0.286$, $p=0.000$). The respondents' total score for the dimension of perceived professional self-efficacy in the application of teaching strategies corresponded with the answer “Quite a bit” (AM=4.23, Me=4.30). In the dimension of perceived professional self-efficacy in classroom management, the total score corresponded with the answer “Quite a bit” as well (AM=4.00, Me=4.00). The total score in the “My Academic Subject” questionnaire corresponded with the “I agree” answer (AM=2.96, Me=3.00).

Table 3 indicates a statistically significant difference in the perceived professional self-efficacy of teachers in the applying of teaching strategies from the viewpoint of obtaining a teaching qualification (Mann-Whitney U test=9110.500, $p=0.047$, AM=4.25, Me=4.30, AM=4.17, Me=4.15). Respondents who obtained a teaching qualification through university studies of a teacher's study program achieved a higher score in this dimension than respondents who obtained a teaching qualification through additional education in a supplementary pedagogical study. A statistically significant difference was also demonstrated in the quality of teaching as measured by the “My Academic Subject” questionnaire from the viewpoint of teachers' sex (Mann-Whitney U test=5140.500,

p=0.012, AM=2.98, Me=3.00, AM=2.86, Me=2.85) and the prevalence of Roma students in teaching (Mann-Whitney U test=3665.500, p=0.000, AM=2.74, Me=2.85, AM=3.00, Me=3.00). Female respondents and respondents working with fewer Roma

students in teaching scored higher than their counterparts. In the first two cases, we identified a weak substantive significance of the differences, and in the third case, a moderately strong substantive significance of the difference ($\eta^2=0.012, 0.018, 0.061$).

Table 1: Research sample characteristics

Demographic characteristics of the research sample	N	%
sex		
<i>females</i>	297	86.84
<i>males</i>	45	13.16
teaching qualifications		
<i>holders of a university teaching degree</i>	260	76.02
<i>additional pedagogical education</i>	82	23.98
reflective teaching training as part of continuous education during the last 8 years		
<i>yes</i>	98	28.65
<i>no</i>	244	71.35
interest in completing reflective teaching training		
<i>yes</i>	269	78.65
<i>no</i>	73	21.35
school type		
<i>primary school</i>	316	92.40
<i>grammar school</i>	26	7.60
prevalence of Roma students in teaching		
<i>yes</i>	43	12.57
<i>no</i>	299	87.43
length of practice in years completed		
<i>2 – 5</i>	64	18.71
<i>6 – 10</i>	67	19.59
<i>11 – 15</i>	58	16.96
<i>16 – 20</i>	55	16.08
<i>21 – 25</i>	33	9.65
<i>26 – 30</i>	32	9.36
<i>31 and more</i>	33	9.65
region		
<i>Bratislava</i>	42	12.28
<i>Trnava</i>	11	3.22
<i>Trenčín</i>	57	16.67
<i>Nitra</i>	23	6.73
<i>Žilina</i>	42	12.28
<i>Banská Bystrica</i>	48	14.04
<i>Prešov</i>	54	15.79
<i>Košice</i>	65	19.01

Table 2: The relationship between the perceived professional self-efficacy of teachers and the quality of their teaching

The relationship between the perceived professional self-efficacy and the quality of teaching		quality of teaching measured by the “My Academic Subject” questionnaire
<i>perceived professional self-efficacy in the application of teaching strategies</i>	Spearman’s correlation coefficient	0.368
	p-value	0.000***
	N	342
<i>perceived professional self-efficacy in classroom management</i>	Spearman’s correlation coefficient	0.286
	p-value	0.000***
	N	342

Table 3: Statistically significant differences in perceived professional self-efficacy and the quality of teaching in terms of the main independent variables

Variables	Dependent variables					
	<i>professional self-efficacy in the application of teaching strategies</i>		<i>professional self-efficacy in classroom management</i>		<i>quality of teaching (My Academic Subject)</i>	
<i>sex</i>	Mann-Whitney U test	p-value	Mann-Whitney U test	p-value	Mann-Whitney U test	p-value

	5715.000	0.117	6634.500	0.938	5140.500	0.012*
<i>teaching qualifications</i>	Mann-Whitney U test	p-value	Mann-Whitney U test	p-value	Mann-Whitney U test	p-value
	9110.500	0.047*	9275.000	0.074	10200.000	0.554
<i>reflective teaching training as part of continuous education</i>	Mann-Whitney U test	p-value	Mann-Whitney U test	p-value	Mann-Whitney U test	p-value
	11914.000	0.959	10933.000	0.213	11808.000	0.857
<i>interest in completing reflective teaching training</i>	Mann-Whitney U test	p-value	Mann-Whitney U test	p-value	Mann-Whitney U test	p-value
	9214.500	0.419	8810.000	0.176	9302.500	0.489
<i>school type</i>	Mann-Whitney U test	p-value	Mann-Whitney U test	p-value	Mann-Whitney U test	p-value
	4066.500	0.932	3516.000	0.219	3680.500	0.376
<i>prevalence of Roma students in teaching</i>	Mann-Whitney U test	p-value	Mann-Whitney U test	p-value	Mann-Whitney U test	p-value
	5570.500	0.156	5927.500	0.406	3665.500	0,000***
<i>length of teaching experience</i>	Kruskal-Wallis test	p-value	Kruskal-Wallis test	p-value	Kruskal-Wallis test	p-value
	9.345	0.155	7.835	0.250	2.919	0.819

4. DISCUSSION

Self-efficacy is an important autoregulation element in teachers' work because the self-assessment of their own potential determines their approach to students and the quality of their professional performance in the classroom. Teachers with higher perceived professional self-efficacy can exert more effort in educational work because they are driven by internal motivation. In contrast, teachers with lower perceived professional self-efficacy tend to exhaust their energy when confronted with challenges (Gavora, 2012b).

Our assumption, which draws on the presented theory and existing research, was confirmed. The presented research, which focused specifically on the 7th grade, showed that the higher the teachers' perceived self-efficacy, the higher they self-assess the quality of their teaching. As measured by the questionnaire "My Academic Subject," the professional self-efficacy in the application of teaching strategies was identified as a stronger correlate to the perceived quality of teaching in comparison to the professional self-efficacy in classroom management, but in the latter case, the correlation value also approximates 0.30. As explained by Rabušić et al. (2019), lower values pertaining to medium strong correlation (about 0.30) are an acceptable result in the context of the humanities (the sample size must also be considered). Notwithstanding the above, our findings and the results of the meta-analysis position professional self-efficacy as a significant positive determinant of teaching performance.

Klassen and Tze (2014) performed a systematic analysis of the research addressing the impact of professional self-efficacy and teachers' personality attributes on teaching efficiency. Self-efficacy proved to be more decisive in terms of teaching efficiency than teachers' personality attributes. Yada et al. (2022) found a moderate positive correlation between teachers' professional self-efficacy and their attitude towards inclusive education. The Slovak "To dá rozum/Learning Makes Sense" project research team focused on the analysis of the state of the Slovak education system and arrived at a similar conclusion (Hall et al., 2019).

The results of the partial analyses presented in Table 3 indicate which factors could have affected the relationships between the investigated constructs. It is worth noting primarily the difference in scores on the "My Academic Subject" questionnaire in terms of working with Roma students in the classroom. This indicator may be distorting the view of the correlation between self-efficacy and quality of teaching (after excluding the respondents working predominantly with Roma students from the database, the correlation coefficients slightly increased – $r_s=0.382, 0.298$). Understandably, working with students from different sociocultural backgrounds entails a change in the requirements for teachers' work, which inevitably affects the view of the quality of education (expected vs. actual student performance) (Slowik, 2022). The "My academic subject" questionnaire may not have captured these differences.

In a study by Alnahdi and Schwab (2023), data from the Saudi Arabian TIMSS 2019 were analysed to investigate the existence of a relationship between 4th grade student achievement and gender differences in teacher practices and attitudes. Teaching practices were shown to be positively associated with student achievement in math and science (there were even gender differences in teaching style and practices). It is interesting that female teachers had more positive attitude towards teaching than male teachers. This is a factor that can have a fundamental impact on how teachers manage teaching and work with students (also taking into account the grade).

Moosa and Shareefa's research (2019) focused, among other things, on the identification of statistically significant differences in the perceived self-efficacy of teachers with regard to the length of their practice and the obtaining qualification. The teachers' experience was more decisive. Nevertheless, obtaining a teaching qualification should not remain on the periphery as a control variable when mapping the perceived self-efficacy of teachers. Obtaining a teacher's qualification can relate both to preparation for working with students (structured study with a more holistic connection of scientific disciplines, didactics, and practice), but also to the motivation to practice the teaching profession (primary or alternative choice). It probably contributes to the formation of the teacher's professional self-image, which is reflected into confidence in their abilities.

Besides the modification of the instrument designed for mapping teachers' perceived professional self-efficacy and the specificity of the sample (7th grade only), further limitations of the presented research include the construct validity of the "My Academic Subject" questionnaire, which was not confirmed as we did not expect to work with a uni-dimensional instrument. Even the selected factor analysis rotation was diagonal, which indicates that factors were mutually dependent. To resolve this situation, a uni-dimensional instrument can be adopted for defining the quality of teaching. Gavora opted for a similar solution twice: his first research focused on measuring teachers' professional self-efficacy (Gavora, 2011a), while the latter investigated courage vs. shyness in communication among grammar school students (Gavora, 2011b). Our questionnaire targets a single complex attribute (to simplify the interpretation, the terms lower/higher scores in the "My Academic Subject" questionnaire were referred to throughout this text). However, its disadvantage is that it cannot identify which component of teaching quality is strengthened by perceived professional efficacy (e.g. students' interest in the subject, subject difficulty for the students).

The aforementioned limitation puts us in the same frame when considering the practice guidelines for teachers working with 7th graders. We conclude that perceived professional self-efficacy requires more attention to determine how teachers understand their responsibility for students' development, whether they are able to cope with classroom problems, and what activation methods they choose to apply. Professional self-efficacy contributes to the development of empathy in teachers. Teachers with empathy as a personality trait communicate with their students more effectively and are able to motivate them to learn (Goroshit & Hen, 2016).

Further research should investigate the correlation between teachers' professional reflection and their perception of the quality of the educational process. Korthagen and Wubbels (1995) in their study of reflectivity correlates note that reflective teachers show a higher perceived professional self-efficacy, and this aspect should be paid attention to in terms of professional reflection. Practical experience with supervising teachers also confirms the need for the diagnostic and auto-diagnostic competences development as a prerequisite for becoming a practicing reflective professional (Novocký et al., 2021). The perceived professional self-efficacy of these teachers (known as mentors) should also be monitored, as they help student teachers in the process of becoming a professional. It can be an essential independent variable that should not be underestimated when examining these concepts (self-efficacy and teaching quality).

Sources

1. Abun, D., Natividad, E. B., Nicolas, M. T., Magallanes, T., Mansueto, J. M. Examining the Effect of Teacher's Self-Efficacy on Job Satisfaction. *International Journal of Research In Business and Social Science* [online]. 2021, 10(8), 338–349 [cit. 2022-10-15]. ISSN 2147-4478. Retrieved from <https://srn.com/abstract=3998331>
2. Alnahdi, G. H., Schwab, S. The impact of gender differences in teachers' teaching practices and attitudes on students' math and science achievement in Saudi Arabia: Evidence from TIMSS 2019 data. *Frontiers in Psychology* [online]. 2023, 14, 1066843 [cit. 2023-05-09]. ISSN 1664-1078. DOI: 10.3389/psyg.2023.1066843
3. Artino, A. R. Academic self-efficacy: from educational theory to instructional practice. *Perspectives on Medical Education* [online]. 2012, 1(2), 76–85 [cit. 2022-11-15]. ISSN 2212-277X. <https://doi.org/10.1007/s40037-012-0012-5>
4. Bandura, A. *Self-efficacy: The Exercise of Control*. New York: W. H. Freeman, 1997. 604 p. ISBN 978-0-7167-2850-4.
5. Barni, D., Danioni, F., Benevene, P. Teachers' Self-Efficacy: The Role of Personal Values and Motivations for Teaching. *Front. Psychol.* [online]. 2019, 10, 1645 [cit. 2022-11-15]. ISSN 1664-1078. <https://doi.org/10.3389/psyg.2019.01645>
6. Blaško, M. *Kvalita v systéme modernej výučby*. Košice: Technická univerzita, 2013. 374 p. ISBN 978-80-553-1281-1.
7. Bong, M., Skaalvik, E. M. Academic Self-Concept and Self-Efficacy: How Different Are They Really? *Educational Psychology Review* [online]. 2003, 15, 1–40 [cit. 2022-11-15]. ISSN 1573-336X. <https://doi.org/10.1023/A:1021302408382>
8. Bullough, R. V., Gitlin, A. D. Challenging Teacher Education as Training: four propositions. *Journal of Education for Teaching* [online]. 1994, 20(1), 67–81 [cit. 2022-11-23]. ISSN 1360-0540. <https://doi.org/10.1080/0260747940200109>
9. Centrum vedecko-technických informácií SR. Podpora vedy, výskumu, vývoja, inovácií a vzdelávania. *Štatistická ročenka – základné školy 2016/2017* [online]. Bratislava: CVTI SR, 2022 [cit. 2022-11-28]. Retrieved from https://www.cvtisr.sk/cvti-sr-vedecka-kniznica/informacie-o-skolstve/statistiky/statisticka-rocenka-publikacia/statisticka-rocenka-zakladne-skoly.html?page_id=9601#
10. De Vaus, D. *Analyzing Social Science Data: 50 Key Problems in Data Analysis*. California: Sage Publications Ltd., 2002. 402 p. ISBN 978-0-7619-5938-0.
11. Gavora, P. Rozvoj vnímanej zdatnosti (self-efficacy) študentov učiteľstva: možnosti zlepšenia učiteľského vzdelávania. *AULA* [online]. 2012b, 20(1), 62–77 [cit. 2022-11-24]. ISSN 2533-4433. Retrieved from https://www.csvs.cz/wp-content/uploads/2019/01/Aula_02-2012_Gavora_62_77.pdf
12. Gavora, P. Skúsenosti so zisťovaním self-efficacy učiteľa pomocou dotazníka OSTES. In: *Kvalita ve vzdelávání: Sborník příspěvků z XX. výroční konference České asociace pedagogického výzkumu Praha, 10. – 12. září 2012* [online]. Praha: PF UK, 2012a [cit. 2022-11-17]. pp. 11–18. ISBN 978-80-7290-620-8. Retrieved from <https://pages.pedf.cuni.cz/ca/pv2012/files/2016/02/Sbornik-CAPV-2012.pdf>
13. Gavora, P. Smelosť verzus ostýchavosť v komunikácii gymnazistov. *Studia paedagogica* [online]. 2011b, 16(1), 119–136 [cit. 2022-11-23]. ISSN 2336-4521. Retrieved from <https://journals.phil.muni.cz/studia-paedagogica/article/view/18730/14791>
14. Gavora, P. Zisťovanie profesijnej zdatnosti učiteľa pomocou dotazníka OSTES. *Pedagogika.sk* [online]. 2011a, 2(2), 88–107 [cit. 2022-11-28]. ISSN 1338-0982. Retrieved from <https://www.casopispedagogika.sk/studie/gavora-peter-zistovanie-profesijnej-zdatnosti-uciteľa-pomocou-dotazníka-ostes.html>
15. Goroshit, M., Hen, M. Teachers' empathy: can it be predicted by self-efficacy? *Teachers and Teaching: Theory and Practice* [online]. 2016, 22(7), 805–818 [cit. 2022-11-24]. ISSN 1470-1278. <https://doi.org/10.1080/13540602.2016.1185818>
16. Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E. *Multivariate Data Analysis*. 7th ed. New York: Pearson, 2010. 816 p. ISBN 978-0-13-813263-7.
17. Hall, R., Drál, P., Fridrichová, P., Hapalová, M., Lukáč, S., Miškolci, J., Vančíková, K. *Analýza zistení o stave školstva na Slovensku: To dá rozum* [online]. Bratislava: MESA10, 2019 [cit. 2022-11-10]. 1127 p. Retrieved from <https://analyza.todarozum.sk/analyza-zistení-o-stave-skolstva-na-slovensku.pdf>
18. Hopkins, D., Stern, D. Quality teachers, quality schools: International perspectives and policy implications. *Teaching and Teacher Education* [online]. 1996, 12(5), 501–517 [cit. 2022-11-11]. ISSN 1879-2480. [https://doi.org/10.1016/0742-051X\(95\)00055-O](https://doi.org/10.1016/0742-051X(95)00055-O)
19. Hrabal, V., Pavelková, I. *Jaký jsem učitel*. Praha: Portál, 2010. 240 p. ISBN 978-80-7367-755-8.
20. Jang, B. G., Cho, H., Wiens, P. Self-Efficacy and Quality of Classroom Interactions of EFL Teachers in Niger. *The*

- International Education Journal: Comparative Perspectives* [online]. 2019, 18(3), 57–73 [cit. 2022-11-12]. ISSN 2202-493X. Retrieved from https://digitalscholarship.unlv.edu/tl_fac_articles/273
21. Klassen, R. M., Tze, V. M. C. Teachers' self-efficacy, personality, and teaching effectiveness: A meta-analysis. *Educational Research Review* [online]. 2014, 12, 59–76 [cit. 2022-11-09]. ISSN 1878-0385. <https://doi.org/10.1016/j.edurev.2014.06.001>
 22. Korthagen, F., Wubbels, T. Characteristics of Reflective Practitioners: towards an operationalization of the concept of reflection. *Teachers and Teaching: Theory and Practice* [online]. 1995, 1(1), 51–72 [cit. 2022-11-11]. ISSN 1470-1278. <https://doi.org/10.1080/135406095001010105>
 23. Künsting, J., Neuber, V., Lipowsky, F. Teacher self-efficacy as a long-term predictor of instructional quality in the classroom. *European Journal of Psychology of Education* [online]. 2016, 31, 299–322 [cit. 2022-12-02]. ISSN 1878-5174. <https://doi.org/10.1007/s10212-015-0272-7>
 24. Lašek, J., Mareš, J. Jak změřit sociální klima třídy? *Pedagogická revue*, 1991, 43(6), 401–410. ISSN 1335-1982.
 25. Lenhard, W., Lenhard, A. *Computation of effect sizes* [online]. 2016 [cit. 2022-12-22]. Retrieved from https://www.psychometrika.de/effect_size.html
 26. Mojavezi, A., Tamiz, M. P. The Impact of Teacher Self-Efficacy on the Students' Motivation and Achievement. *Theory and Practice in Language Studies* [online]. 2012, 2(3), 483–491 [cit. 2022-12-09]. ISSN 2053-0692. <https://doi.org/10.4304/tpls.2.3.483-491>
 27. Moosa, V., Shareefa, M. The Impact of Teachers' Experience and Qualification on Efficacy, Knowledge and Implementation of Differentiated Instruction. *International Journal of Instruction* [online]. 2019, 12(2), 587–604 [cit. 2023-05-09]. ISSN 1308-1470. <https://doi.org/10.29333/iji.2019.12237a>
 28. Nikodémová, V., Fenyvesiová, L., Tirpáková, A. Zisťovanie úrovne vnímanej zdatnosti učiteľov vyššieho sekundárneho vzdelávania pomocou dotazníka OSTES. *Edukácia* [online]. 2017, 2(1), 160–174 [cit. 2022-12-06]. ISSN 1339-8725. Retrieved from https://www.upjs.sk/public/media/15903/Nikodema_Fenyvesiova_Tirpakova.pdf
 29. Novocký, M., Orosová, R., Petříková, K. *Cvičný učitel' ako diagnostik a reflexívny praktik*. Košice: UPJŠ, 2021. 154 p. ISBN 978-80-574-0033-2.
 30. Rabušic, L., Soukup, P., Mareš, P. *Statistická analýza sociálněvědních dat (prostřednictvím SPSS)*. Brno: Masarykova univerzita, 2019. 576 p. ISBN 978-80-210-9247-1.
 31. Rovňanová, L. Subjective evaluation of demands on performance of teacher professional activities. *The New Educational Review* [online]. 2013, 34(4), 292–304 [cit. 2023-02-03]. ISSN 1732-6729. Retrieved from https://www.researchgate.net/publication/339080255_Subjective_Evaluation_of_Demands_on_Performance_of_Teacher_Professional_Activities
 32. Rovňanová, L., Nemcová, L. Integration of theoretical and practical undergraduate training in the processes of developing student teachers' professional competences. *The New Educational Review* [online]. 2017, 47(1), 176–186 [cit. 2023-02-03]. ISSN 1732-6729. Retrieved from https://www.researchgate.net/publication/317001761_Integration_of_Theoretical_and_Practical_Undergraduate_Training_in_the_Processes_of_Developing_Student_Teachers%27_Professional_Competences
 33. Slowík, J. *Inkluzivní speciální pedagogika*. Praha: Grada, 2022. 240 p. ISBN 978-80-271-3010-8.
 34. Turek, I. *Škola a kvalita*. Bratislava: Wolters Kluwer, 2015. 376 p. ISBN 978-80-8168-221-6.
 35. Türkoğlu, M. E., Cansoy, R., Parlar, H. Examining Relationship between Teachers' Self-efficacy and Job Satisfaction. *Universal Journal of Educational Research* [online]. 2017, 5(5), 765–772 [cit. 2023-04-03]. ISSN 2332-3213. DOI: 10.13189/ujer.2017.050509
 36. Xiyun, S., Fathi, J., Shirbagi, N., & Mohammaddockht, F. A Structural Model of Teacher Self-Efficacy, Emotion Regulation, and Psychological Wellbeing Among English Teachers. *Frontiers in Psychology* [online]. 2022, 13, 904151 [cit. 2023-02-21]. ISSN 1664-1078. <https://doi.org/10.3389/fpsyg.2022.904151>
 37. Yada, A., Leskinen, M., Savolainen, H., Schwab, S. Meta-analysis of the relationship between teachers' self-efficacy and attitudes toward inclusive education. *Teaching and Teacher Education* [online]. 2022, 109, 103521 [cit. 2023-02-11]. ISSN 1879-2480. <https://doi.org/10.1016/j.tate.2021.103521>