

Teachers' Self-Efficacy as a Determinant of Lesson Management Quality

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Abstract – In this paper we study the self-efficacy level of teachers at selected secondary schools in Slovakia and the influence of teachers' self-efficacy on the quality of lesson management. The issue in question was experimentally analysed on a sample of secondary school teachers in Slovakia in the period 2016 - 2017. The results of the experiment were evaluated by means of statistical methods. The study has found that the higher the level of self-evaluation achieved by teachers is, the better teachers are in their adoption of active teaching practices.

Keywords – Teacher's Self-efficacy, Secondary School Teachers in Slovakia, Evaluation Indices, Social-Cognitive Theory of A. Bandura, Kruskal-Wallis' test.

1. Introduction

A) *Self-efficacy as the theory of perceived professional capability of a teacher*

Teachers and their profession are often subjected to educational research, which is often focused on topics such as learners' opinions on teachers [1], the teachers' influence on learners' mental development,

the typology of teachers' personality, teachers' workload, exhaustion in teachers' work, teachers' skills [2] teachers' professional activities [3]. The brief overview of the research topics is not complete; yet, these topics have definitely influenced the understanding of teachers' performance, and, thus, have become a certain evidence of the variety of educational matters investigated in Slovak educational environment. In this context, Gavora [4] emphasizes that the feeling that the teacher's performance could be precisely mapped by observation of the external side of their class activity has been strengthened; yet, not what their actions are based on and motivated by, or why they teach exactly the way they do and not in any other way. Modern researches have turned their attention to teachers' thinking, attitudes and beliefs. The subject matter of the hereby presented study is the issue of teachers' self-efficacy. The study provides developmental background and subsequent analysis of how teachers evaluate their professional ability, what conceptions they have about themselves, i. e. how they understand, evaluate and assess themselves as teachers. It is this conception is a strong factor which facilitates and supports the teachers' application of professional knowledge and skills. There are two influential approaches dealing with the theory of teachers' self-efficacy. The first approach evolves from Rotter's theory [5] on the *internal* versus *external control* of activities which is known as the *locus of control* (it expresses the extent to which men believe they are able to manage and control events, situations and activities in their life, and also the degree to which men ascribe responsibility for their acts to themselves or to external factors). The second approach derives from Bandura's theory of *social cognitive learning* [6]. It explains the acting of a man as interaction of three dimensions – one's personal factors such as cognitive, affective and biological qualities, the environment in which a man operates, and their past and present activities. This multifacetedness and interconnectedness of separate dimensions is referred to as reciprocal determinism by Bandura [7]. According to Pintrich and Schunk

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[8], although there seem to be a number of Rotter's ideas in Bandura's theory, the latter has significantly changed their standpoint and extended them by implementing self-efficacy and self-regulatory processes. Contrary to Rotter, in his social cognitive theory Bandura [7] distinguishes two types of expectancy which contribute to a man's successful performance, namely (1) a man is successful in their performance when they have the potential to execute a certain activity; they themselves expect that the activity be solved without any problems (efficacy expectation); (2) a man is successful in their performance when they expect and are assured that they will reach concrete results by this activity; they themselves are sure about it (outcome expectancy).

B) *Self-efficacy as the confidence of a teacher in their own abilities and skills to teach effectively and apply their influence in the teaching process*

It is known that self-efficacy is a man's basic tool, a part of their personal identity, and an important self-regulative personality trait which influences them in their decision-making as to the manner they act. It also influences the teaching performance or its quality. In the educational environment, the efficacy is most often applied as the determining factor of a teacher's activities. According to Fenyvesiová and Kollárová [9] a teacher's self-efficacy can be understood as the teacher's responsibility for the results of the educational process; only to a certain extent, though, because the perceived capability is a subjective variable; it is not the actual level of performed activities. Nevertheless, it is a very strong and important subjective variable in the teacher's profession, since the level at which the teacher perceives their competencies is significantly reflected in the results of their activities. Teachers' self-efficacy in the educational process expresses the degree of their confidence in their own abilities and skills to teach effectively and solve problems. In this respect Gavora [10] and Wiegerová et al. [11] were the first who conducted research in this field in Slovakia. They emphasize that teachers with low confidence in their capabilities and possibilities influence their learners negatively. Conversely, teachers with high confidence in their own capabilities have a positive influence on the development of learners' motivation to progress. A number of researchers have come to the conclusion that the extent of confidence which teachers have in their own abilities to influence learners' study impacts the way of managing the lesson as well as teachers' attitude to education in general [12].

What is, then, evident from the aforementioned considerations is that if a teacher evaluates themselves as being professionally skilled, such an estimation has a positive impact on the results of the educational process as a whole. In the next part of this study we deal with the quality of lesson management and the basis of the educational work at schools in Slovakia.

C) *The quality of lesson management – the results of micro-teaching analyses*

Two essential phenomena pertaining to the concept of quality, i.e. creativity and humanism, are the foundational base of educational work at schools in Slovakia defined by the *National Programme of Upbringing and Education* (so-called *Millennium Plan*) [13]. The programme is a springboard for the realization of the research method of micro-teaching analyses. The method in question is an invaluable tool for learning more about the aforementioned phenomena, and, as such, for stimulating creativity and humanism, the quality of teaching, and the quality of school through managing practice [14]. Currently, the most suitable scheme for the practice of school headmasters, their deputies, inspectors, methodologists, as well as researchers is considered the analytic scheme co-developed by Ďurič [15], Langová and Kodým [16], Zelinová [17] and others. Zelina [18] refers to the analytic scheme as AS9. The AS9 observation scheme interweaves Flander's approach with the one introduced by Anderson, allowing the identification of the following: (1) directivity or non-directivity of teachers, their style of lesson management (2) the development of higher versus lower cognitive functions, and (3) motivation that is fostered by teachers in their learners through the teachers' verbal responses in the classroom (positive or negative motivation). Several studies [17, 19, 20] have applied the AS9 observation scheme while employing the method of micro-analysis for the evaluation of the quality of educational process [21,22,23]. The findings at which the abovementioned authors arrived are encapsulated in Zelina's statement [18] declaring that these as well as other researches clearly showed that Slovak teachers and educators do not know the theory of the cognitive functions development and they do not use proper stimuli for a complex development of cognitive functions and positive motivation in their practice. Still, as to the exceptions, the directive style of lesson management prevails. That is why it can justifiably be added that the implementation of the theory of the complex development of cognitive functions, non-directive management of learners, and the introduction of positive motivation can indeed become 'a silent revolution' in education [18].

2. Methodology and methods

The main aim of our research was to find out if the level of teachers' self-efficacy has any influence on the quality of their lesson management. To fulfil this objective, we set two partial aims:

- 1) *To identify the level (weak or strong) of self-efficacy of upper secondary school teachers in Slovakia.* In this respect, we pursued the following research question: *Are there any identifiable differences in the level of teachers' self-efficacy in relation to the length of their teaching service?*
- 2) *To compare the lesson management quality of teachers with different self-efficacy levels by means of three assessment indices:*
 - *the index of cognitive functions development (Icf);*
 - *the index of motivation (Im);*
 - *the index of education management style (Id).*

The following research questions were set:

1. *Do teachers with higher self-efficacy achieve different Icf, Im and Id indices than teachers with lower self-efficacy?*
2. *If yes, in what direction then?*

The validity of the research questions was verified experimentally. With consent given by the school management, the research was conducted in selected secondary schools in seven regions of Slovakia. As the population of our experiment would be formed by upper secondary school teachers working at vocational secondary schools specialized in teacher education, so-called pedagogical and social academies (PaSA), the research sample, formed through the stratified selection strategy, consisted of 61 teachers who were teaching subjects Pedagogy and/or Psychology in the school year 2016/2017. The research tool OSTES, more precisely its re-validated Slovak version, was applied for the identification of the teachers' self-efficacy level [10]. The research was realized by means of a questionnaire as an adopted research method. The questionnaire comprised 15 items which were focused on two aspects of teachers' self-efficacy related to their teaching. The first aspect concerned "didactic" efficiency corresponding to dimension I (The capability to apply teaching strategies). The second aspect, teachers' efficiency "to manage the class" from the perspective of discipline, was observed in relation to dimension II (The capability to manage the class). Answering the questions on a nine-point scale (from *not at all* to *very much*) the teacher formulates what they are able to do in order to achieve required results in their learners. With

regard to the scale, the higher the score, the better and stronger the self-efficacy.

After the questionnaire phase, the method of micro-teaching analysis was applied. At this stage of the experiment we co-operated with six teachers selected from the total sample on the basis of the achieved self-efficacy level. The group of six teachers consisted of three teachers with the highest level of self-efficacy (labelled T1, T2, T3), and three teachers with the lowest level of self-efficacy (T4, T5, T6), as identified by means of the questionnaire. The teachers consented to audio-recording of their lessons. The lessons of teachers with the lowest and highest self-efficacy level were analysed by means of the AS9 observation scheme. The recording technique of the lessons involved the production of audio-records using a voice recorder, and subsequent written recording of protocols. Natural coding was, then, used to record educational phenomena, as listed in the AS9 observation scheme. In average, 338 interaction units were identified per one lesson. The particular frequencies of the phenomena, following the AS9 codes (A – acceptance of learners, positive motivation; Q – teacher's questions to learners, where Q1 and Q2 are types of questions making demands on lower cognitive functions, and Q3 and Q4 are types of questions requiring employment of higher cognitive functions; R – negative evaluation of learners, negative motivation; T – teacher's talk, instructions, explanation of learning material), were expressed by indices $Icf = \frac{Q3+Q4}{Q1+Q2}$, $Im = \frac{A}{R}$,

$Id = \frac{A+Q}{T+R}$. If a teacher achieves the index value below 1, they are more likely to practice directive teaching style (*Id*), develop lower cognitive functions (*Icf*), and punish and criticize rather than praise and encourage their learners (*Im*).

3. Results

The interpretation of results and discussion to the first partial aim: *To identify the level (weak or strong) of self-efficacy of upper secondary school teachers in Slovakia.*

The level (weak, strong) of self-efficacy was recorded for each respondent from the sample ($N = 61$) by means of the OSTES questionnaire [10]. The teachers were subdivided into four groups according to the length of their teaching practice: less than 10 years of practice, from 10 to 19 years, from 20 to 29 years, and the last group involved teachers who had been practising teaching more than 30 years (including 30). The questionnaire results are illustrated in Figure 1.

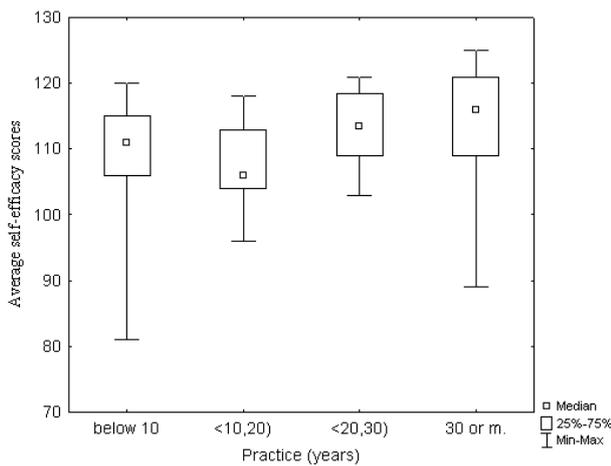


Figure 1. The average scores of the in-service teachers' self-efficacy

As shown in Figure 1., teachers in groups by the length of their teaching practice perceived their professional capabilities differently. In order to verify if the differences are statistically significant, the following null hypothesis was tested: k ($k = 4$) of the independent samples has the same distribution, i. e. the group of respondents (teachers with practice length as corresponding to groups 1, 2, 3, and 4) does not differ significantly in the observed variable – their score in self-efficacy level. The null hypothesis was verified by means of the Kruskal-Wallis' test [24] realized in the program STATISTICA. Since the probability value $p = 0.067$ is greater than 0.05, the null hypothesis cannot be rejected at the significance level $\alpha = 0.05$. It means that the groups of teachers formed in terms of their practice length do not differ significantly in their self-efficacy level. This indicates that the results related to the level of teachers' self-efficacy (weak, strong) give evidence that upper secondary school teachers ($N = 61$) hold high perceptions of their teaching competencies, and although there are certain differences between the teachers' subjective views of their capabilities, the differences are not significant in relation to their practice length.

The interpretation of results and discussion to the second partial aim: To compare the lesson management quality of teachers with different self-efficacy levels by means of three assessment indices (I_{cf} , I_m , I_d) using the method of micro-teaching analysis.

To fulfil this aim it was necessary to find the answers to a couple of questions, as stated in the description of research methods, on the basis of which we phrased the following assumptions:

A1: We assume that teachers with high self-efficacy level will achieve the index of the cognitive

functions development (I_{cf}) oriented in the positive direction, i.e. the index value (I_{cf}) will exceed 1.

A2: We assume that teachers with higher self-efficacy level will achieve the index of motivation (I_m) oriented in the positive direction, i.e. the index value (I_m) will be greater than 1.

A3: We assume that teachers with high self-efficacy level will achieve the index of their education management style (I_d) oriented in the positive direction, i.e. the index value (I_d) will exceed 1.

The calculated values of indices I_{cf} , I_m , and I_d are discussed below.

Index I_{cf}

The results of the evaluation of the cognitive functions development (index I_{cf}) gained in the groups of teachers according to their scores in self-efficacy are illustrated in Figure 2. Low values of the I_{cf} index which do not exceed 1.0 were gained by means of the lesson analysis of the observed teachers, labelled from T1 to T6, in the area of the cognitive functions development. The achieved values of the I_{cf} index suggest that the teachers assigned to their learners such tasks and asked them such questions which were mainly focused on the utilization of learners' lower cognitive functions rather than high cognitive functions. The emphasis on learners' lower cognitive functions prevails in the lesson management of teachers with high as well as low self-efficacy.

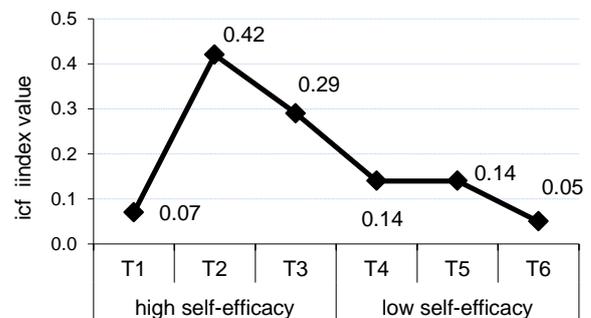


Figure 2. Values of the I_{cf} index achieved by teachers with high and low self-efficacy

The problem lies, however, in the fact that if a teacher constantly assigns tasks and exercises focused exclusively on perception, memory and lower cognitive functions, learners can hardly master the learning material sufficiently. Only a teacher stimulating all cognitive functions evenly can enable learners to acquire the learning material qualitatively indeed. In accordance with many other researches, it was also proved in our research that the problem with the development of higher taxonomic levels, higher cognitive functions, still remains at Slovak schools.

When only the lower cognitive functions are cultivated, learners are not prepared enough to be able to evaluate things, react and behave appropriately, create ideas, form opinions, and so on. Learners whose higher cognitive functions have not been developed, often fail to solve tasks requiring such way of thinking. In terms of the *Icf* values gained in the sample of teachers 1 – 6, the state of exploitation of lower cognitive functions is documented, and it is on this basis that we point out that assumption *A1*, that teachers with high self-efficacy level would achieve the index *Icf* oriented in the positive direction, was not confirmed. In the context of the formulation of assumption *A1* in favour of teachers with high self-efficacy level, it can be noted that although they did not exceed the value 1, their *Icf* values were higher than *Icf* values of teachers with low self-efficacy, apart from the teacher labelled as T1. Regarding the teachers' self-perceived professional capability, this index expresses that the higher the teacher's level of self-evaluation is, the better the teacher is with their tendency to adopt an active attitude to teaching and to use non-traditional procedures, and the like.

Index *Im*.

The research results related to teachers' focus on learners' motivation (index *Im*) gained in the groups of teachers according to their scores in self-efficacy are illustrated in Figure 3.

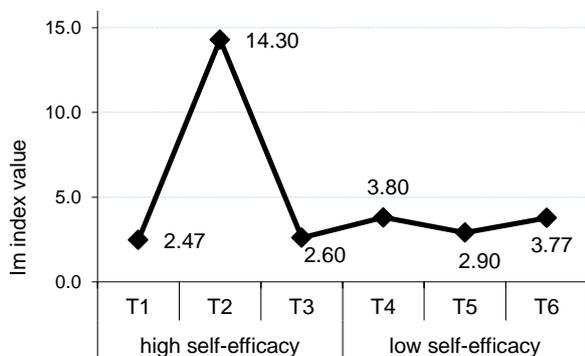


Figure 3. Values of the *Im* index achieved by teachers with high and low self-efficacy

Teachers of both groups with high as well as low self-efficacy achieve high index values of motivation (*Im*). During lessons, these teachers fostered positive motivation by their verbal responses, prompts, and encouragement of their learners. However, teachers with high self-efficacy used less irony, sarcasm, invectives and verbal humiliation of learners, and they did not tend to assess learners immediately after their answers, after their performance. Nevertheless, assumption *A2*, that teachers with higher self-efficacy scores would achieve the *Im* index oriented in the positive direction, was not confirmed

unambiguously. Although teachers with high self-efficacy did achieve the motivation index greater than 1, positively oriented *Im* index values were also obtained by teachers with low self-efficacy scores. The micro-teaching analysis results show that the quality of teachers' lesson management style in relation to their focus on learners' motivation does not depend on the teachers' self-efficacy level. In other words, higher self-efficacy of teachers does not necessarily mean that such teachers tend to be more devoted to promotion of learners' learning motivation, and vice versa, since in our research sample teachers with lower self-efficacy achieved the *Im* index values higher than 1, which means they employed appropriate means to develop learners' motivation. Therefore, we argue that the positive relation between teachers' self-efficacy level and their capability to encourage learners' motivation should be considered in terms of high probability rather than a fixed rule.

Index *Id*.

The results of the micro-analysis of teachers' lesson management skills in relation to their self-efficacy scores are illustrated in Figure 4.

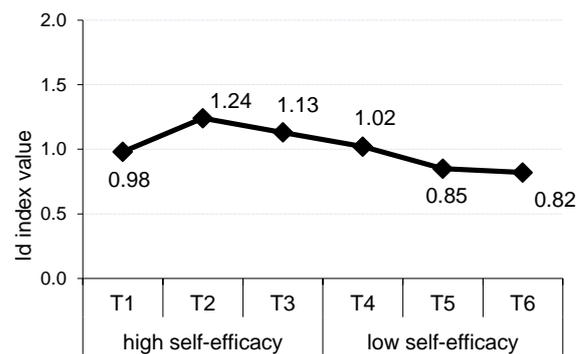


Figure 4. Values of the *Id* index achieved by teachers with high and low self-efficacy

In assumption *A3* we assumed that teachers with high self-efficacy level would achieve the index of their education management style (*Id*) oriented in the positive direction, i.e. the index value (*Id*) would exceed 1, and we could consider them as non-directive in their lesson management strategy. Based on the *Id* index values achieved by two teachers with high self-efficacy out of three (the *Id* value of the third teacher is very close), the stated assumption is accepted. The microanalysis results with regards to the *Id* index demonstrably confirm that, in comparison to teachers with low self-efficacy, teachers with high self-efficacy level incline to the creative and humanistic style of education, they show more acceptance to their learners, and stimulate learners' evaluative and creative thinking. In addition, teachers with higher self-efficacy punished,

reproached and criticized their learners less, they 'bossed about' learners less. By contrast, teachers with low self-efficacy performed rather directive lesson management, as two teachers out of three achieved the *Id* index value smaller than 1 (Teacher 5 = 0.85, Teacher 6 = 0.82). The lesson micro-analysis of the teachers who were included in our research sample showed that teachers with high self-efficacy practised teaching which fully represents an effective way of teaching and completely excludes stigmatisation of the teacher-learner relationships.

4. Discussion

Since self-efficacy cannot be observed directly in teachers' activities (self-efficacy is the teacher's subjective view of themselves, and their implicit trait manifesting itself indirectly only), issues related to self-efficacy can remain unnoticed, being not paid attention they definitely deserve. Being the issue rather under-researched in Slovakia, our research was aimed at examining if the level of teachers' self-efficacy has any influence on the quality of their lesson management. Having conducted the experiment on the sample of the observed teachers related to the quality of the lesson management, it was confirmed that the higher the level of teacher's self-efficacy is, the better the teacher is in their tendency to adopt an active attitude to the teaching process. In relation to their focus on learners' motivation in teachers with high and low self-efficacy, a positive orientation of stimulated motivation was confirmed by the experiment. The achieved values of the motivation index (*Im*) from 2.47 to 14.3 indicate the behavioural profile of teachers with highly motivating approach based on the application of incentive responses, praise, rewards, and encouragement towards learners.

As for the lesson management, the results of the microanalysis more demonstrably confirmed that in comparison to teachers with low self-efficacy the teachers with high self-efficacy inclined to creative and humanistic style of education, initiated more incentives of acceptance, stimulated learners' evaluative and creative thinking in greater extent. Moreover, teachers with high self-efficacy punished, reproached and criticized less, they were less bossy, which corresponds to an effective way of teaching, rejecting stigmatisation of the teacher-learner relationships.

A researcher has to be well-motivated for a particular issue to become interested in it and to hold the interest. We assume that one of such stimuli within domestic educational environment may be the dominating trend of increasing demands on teachers' professionalism accompanying the general need to ensure quality education for learners, teachers being

the crucial factor. The character of teachers' work at the beginning of the 21st century lies in one substantial idea, that the core of educational efforts is not only the activities performed by children at school, but also the development of their psychic functions, processes and personality traits. High-quality education should in the first place result in formation of a psychically mature personality of learners who have their own identity, know what they want and have their own self. Thus, teachers' work and the activities and tasks they assign to learners are merely certain means of children's personality development.

So far, research on self-efficacy has not had an extensive application in Slovakia, despite the fact that self-efficacy has a considerable strength in explanation of various phenomena related to teachers' activities. In particular, the concept of self-efficacy explicates and clarifies well the circumstances and causes of teachers' success or failure with their learners. We believe that one of the most important fields of further research related to teachers' self-efficacy should be the influence of their self-efficacy level on the quality of lesson management. A fine lesson management is a sort of 'pre-stage' of current foreign research line obviously focused on building a stronger foundation which would provide evidence on the connectedness between teachers' self-efficacy and their learners' academic achievements, especially at the class level where the teacher's character plays a key role in influencing the learners' results. Klassen and Tze [25] and Klassen et al. [26] suggest that initial results of these studies are a good message for researchers dealing with issues related to self-efficacy. The results are equally important also for researchers studying personality and personality traits, who have discovered that the influence of personality on the effectivity of teaching is inconsiderable, but on the other hand the influence of teachers' self-efficacy on the effectiveness of teaching is of medium significance. According to Klassen et al. [26], further analyses can preliminarily outline a conclusive proposition in accordance with a belief that 'A man is not born as a teacher, but they become one', i. e. teachers develop in their profession, as formable substance of teachers' self-efficacy has a relatively greater impact on effective teaching than their personality.

A great deal of foreign research on issues related to teachers' self-efficacy at various levels and school types report the effectiveness of teachers' self-efficacy in educational contexts in which it is understood as the extent to which teachers believe they can influence learners' achievements [27]. These studies indicate that high level of teachers' self-efficacy is connected with teachers' effort and

tenacity in solving problems, their devotion to their profession, their openness towards innovative teaching methods and positive attitude to learners, as well as implementing humanistic, positive teaching strategies while dealing with learners' difficulties. Mojavezi and Tamiz [28] have recently declared that a substantial part of research discovered that the level of self-efficacy has an influence on teachers and their learners. It was proven by our research that there is a significant relation between teachers' self-efficacy and learners' motivation in lessons. The study confirmed that teachers' self-efficacy is positively connected with teachers' capability to stimulate learners' motivation. Based on the results of our experiment, we confirmed that teachers' self-efficacy is connected with teachers' ability to initiate positive verbal motivation of learners to learning activities. As for motivation, it was confirmed in our study that the higher the teachers' self-efficacy is, the higher their focus on learners' motivation to learning activities, which was observed through teachers' positive verbal utterances. The results of this research are in line with the results of a number of former researches [27] who also indicate a significant correlation between teachers' self-efficacy and improved learners' results. The results of our study are also in concordance with Bandura's observation [7] that teachers with high self-efficacy level are able to motivate their learners better and to foster their cognitive development. Teachers with high self-efficacy level believe that it is possible to teach also the so-called 'non-motivated' learners if more effort is devoted to them and adequate motivational methods are used. Following this assumption it could be appropriate for further research in domestic educational environment to investigate the influence of self-efficacy on motivation and the learners' achievements.

5. Conclusion

Based on the results of our experiment and on the idea that teachers' self-perception might be their strength, we have come to the conclusion that issues related to teachers' self-efficacy should become a pillar of educational research as well as practice of teachers in the Slovak educational reality. Therefore, we believe that an important question of teacher training, and more importantly of further education of in-service teachers should be intentional and well-planned development and stimulation of teachers' self-efficacy, in order to improve their self-perceived as well as actual professional efficiency.

Certain efforts have been made to form healthy professional self-confidence and a positive self-image of Slovak teachers. However, explicit formative actions targeted at teachers' self-efficacy development through a coherent conception are still rare and more frequent only in teacher training of pre-service teachers. So far, there have been only isolated attempts to integrate such formative actions into teachers' continual professional development through an interventional programme, as described for instance in [29], and as we also tried to illustrate by the presented analysis and results of our experiment.

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