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**LEARNING PATTERNS OF FUTURE TEACHERS IN RELATION**  
**TO THEIR STUDY FORM**

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***Abstract***

There is currently a great deal of discussion on the effectiveness of various models of pregraduate professional preparation of teachers in the Czech Republic, with one of the key issues being the organisation of the theoretical and practical components of their preparation. The dominant model of pregraduate preparation of future teachers in the Czech Republic has been the parallel model, in which theoretical preparation and relatively low-intensity pedagogical practical experience take place at the same time. Currently, another model of preparation (consecutive) is beginning to assert itself, emphasising the importance of pedagogical practical experience but separating the theoretical component from the practical one more significantly. When considering the effectiveness of alternative models of pregraduate education, one can assume that each potential model can have its advantages and risks, and its potential graduates can thus develop different learning and teaching patterns. This contribution compares the learning patterns of students in two different study forms – daily and combined – during pedagogical practical experience, with the objective of pointing out some advantages and risks of these methods of pregraduate professional preparation.

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**Keywords:** Future teacher, study form, learning patterns.



## 1. Introduction

In general, the issue of pedagogical preparation of future teachers has been a subject of discussion and research by experts who participate in the preparation of new pedagogues for some time. Our constantly changing educational system faces a challenge in overcoming the transmissive model of education and in contributing towards the development of efficient learning whose foundation lies in the acquisition of skills, abilities and knowledge, meaningful collaboration, and the ongoing interconnection of theory and practice. This mutual interconnection and complementing of both aspects is necessary mainly for the cognitive process. In general, the rule applies that pedagogical practice that is not permeated with theoretical knowledge loses its meaning, similarly to theory that does not result in pedagogical activity losing much of its cognitive value (Solfronk, 1996).

One of the most fundamental overall problems in pedagogical preparation is practical experience. Shortcomings are seen not only in the extent of this experience, but also in the content. It is mainly about the students sitting in on a prescribed number of class, producing outputs, and subsequently analysing them, which is the main condition for receiving credit. They will not encounter the activities working teachers encounter at school every day. One of the key tasks involved in educating future teachers is to develop in them a learning method that enables lifelong learning. In many pedagogical education programmes, students learn from a combination of theoretical and practical sources. Currently, these programmes try to unify learning within these two contexts as much as possible and attempt to overcome the gap between them.

### 1.1. Professional development concepts: theory versus practical experience

Contemporary professional development concepts hardly ever take into account that each pedagogue is a unique individual and that different circumstances can have a significant effect on development. They do not take into account the fact that many teachers can experience their professional development differently. They depict what is normal and desirable under normal circumstances. The stage-by-stage models created are thus often criticised, mainly because they insufficiently address the fact that a pedagogue's professional development can also include various pitfalls, many times even regression, and that not every teacher will make it all the way to the expert stage. As an example, we can mention qualified foreign language teachers, where not every linguist is a good teacher - a didactic and a methodologist. According to Besedová (2017), an important feature of a foreign language teacher is to facilitate the natural acquisition of a foreign language in authentic situations. Yet in many countries these models have led to the creation of standards with regard to teachers' professional development and the assessment of the quality of teachers' work (Tomková, 2012).

However, Píšová (2011) mentions that the transition from stage-by-stage models to a more flexible view of teachers' professional development is typical for today. Processes within the framework of which development takes place are perceived as gradual and evolutionary, not exactly defined as in the case of stage-by-stage models. As an example, we can use the Shulman & Shulman model, which shows us that pedagogues do not develop equally in all model components. This means that there can be a certain inequality in achieving expertness. "It represents an attempt to deal with teachers' individual differences,

based on which one can identify the main areas that characterise an accomplished teacher, i.e. an expert teacher, on an individual analytical level, on a community analytical level, and on an educational policy level” (Pířová, 2011, p. 88). Thomas R. Guskey has created and published his Model of Teacher Change in which he very much emphasises the role of the teacher’s classroom practice, the learning outcomes of students during the teacher’s professional development, and also changes related to the teacher’s professional beliefs and attitudes. His model connects questions such as “How do pedagogues learn to teach?” with “How do teachers become teachers and how do they progress towards expertness?” (Pířová, 2011, p. 89).

A teacher’s professional preparation comprises two components: theoretical and practical. The educational systems in various countries and institutions differ from each other both in the ratio of these two components as well as in their duration. Currently, the trend is to use the so-called reflected model of preparation which contains a significant share of practical skills that are then reflected upon and analysed with mentors and colleagues. This reflection and sharing should lead to new perception and understanding and to changes within the framework of one’s own practice (Korthagen, 2011). A classic example of this model is the Dutch dual pregraduate programme for pedagogues, which includes all of the aforementioned elements. In parallel, future teachers are taught theoretical subjects and undergo a longer-term practicum. During this time, they have access to mentoring and other methods of support while they learn by practice.

Contemporary research has shown that making the transition into a teacher is a gradual process which is accompanied not only by external actions, but also by the teacher’s set of beliefs and attitudes, which significantly affect his/her behaviour. And these characteristics are the source of behavioural differences in future teachers in learning situations. Qualitative differences in how student teachers learn to teach are often related to what extent they deal with this combination of theory and practice (Hagger et al., 2008; Buitink 2009, as cited in Endedijk, Donche, & Oosterheert, 2014). Oosterheert, Vermunt, and Denessen (2002) investigated the learning methods used by future teachers during their professional preparation and found several qualitatively different patterns. An inactive/survival oriented pattern characterises teachers who maintain their own area of experience and are hardly able to report on their own self-regulation. In a reproduction oriented pattern, one prefers familiar methods of problem-solving. Then there are two meaning-oriented patterns. In a dependent meaning oriented pattern, one strives to perfect one’s own performance, for which one needs external feedback; in an independent meaning oriented pattern, one self-regulates one’s learning more and strives mainly for active construction of knowledge (see Table 01).

**Table 01.** Types of Learning Patterns Identified by Oosterheert et al. (2002)

Four Types of Learning Patterns	Description
1. Inactive / survival oriented learning pattern.	These student teachers stress that all one needs for learning to teach is a lot of teaching practice and experience. They do not appreciate the help of others in order to become aware of their teaching but also do not think that they should regulate their learning themselves. They rarely use the available sources in their learning environment and are very avoidant and not preoccupied with bad lesson experiences.
2. Reproduction oriented learning pattern.	These student teachers are focused on

	improving their teaching performance within their actual frame of reference. They are not directed at further developing this frame of reference, resulting in a limited use of available sources. They acknowledge bad lesson experiences and have serious worries about these.
3. Dependent meaning oriented learning pattern.	These student teachers try to extend their frame of reference and depend on external sources in doing so, which they highly value. They do not rely much on their own perceptions and thinking yet; others have to help them to interpret their experiences. They are extremely preoccupied with their bad teaching experiences.
4. Independent meaning oriented learning pattern.	These student teachers are most independent in learning to teach: they try to develop their frame of reference, make broad use of external sources and are highly self-regulative. They define problems of learning to teach not only as problems of performance, but also of meaning. On average, they are not very preoccupied with bad lesson experiences.

With the awareness of the existence of differences in the learning methods used by future teachers during their practical experience, it is also appropriate to consider different methods of support and pedagogical intervention. Individuality in learning from practical experience is also related to the reflected and personalised model of practical experience, whose main proponent is Korthagen. In the majority of pedagogical institutions in the Czech Republic, students have the theoretical and practical components of their pregraduate preparation in parallel, but the interconnection of both components is only now being developed. We can also encounter a group of future teachers who are being educated in a different way, namely pedagogues at secondary vocational schools who first gain professional tertiary education and only then attend individual pedagogical/psychological subjects and practical experience. The majority of future teachers in this group already teach, but without systematic support and reflection on their practical experience. The aforementioned groups of future pedagogues are in a learning environment in which systematic support in the form of reflection has not yet been fully developed, which can result in restricted use of sources from both components of professional preparation and in more significant occurrence of uncertainties and doubts about the qualities of these future teachers (Juklová, 2016).

## 2. Problem Statement

When considering the effectiveness of alternative models of pregraduate education, one can assume that each potential model can have its advantages and risks, and its potential graduates can thus develop different learning and teaching patterns. This contribution compares the learning patterns of students in two different study forms – daily and combined – during pedagogical practical experience, with the objective of pointing out some advantages and risks of these methods of pregraduate professional preparation.

## 3. Research Questions

With regard to the differences between the various models and forms of professional preparation, it is possible to assume that they support different learning patterns in future teachers. Within the framework

of our research, we therefore asked the following questions: 1) How do the cognitive strategies used for learning to teach differ in students in the two study forms? 2) How do the students in the two study forms differ in terms of regulation strategies? The concrete objectives of our testing were as follows:

For the area of cognitive learning activities, the specific objectives were to determine:

- to what extent the degree of searching for conceptual information differs in students in daily and combined forms;
- to what extent the two groups of students construct a relationship between acquired theoretical knowledge and practical experience;
- to what extent future teachers in various study forms develop their opinions in a discussion; and
- how students in the two study forms differ in the extent they use their pupils' results or well-being as a criterion for their performance.

In the area of emotion regulation, the specific objectives were to identify:

- to what extent students in the two study forms differ in avoiding unpleasant experiences or unsuccessfully taught lessons; and
- to what extent future teachers in daily and combined study forms experience worries and concerns related to their pedagogical experience.

#### **4. Purpose of the Study**

Answers to those research questions can help educators with better understanding of specialities and demands of each study form and and, on this basis, to create a more informed teaching which is aware of preferences and needs of particular groups of students, while at the same time trying to balance the potential shortcomings of a particular form.

#### **5. Research Methods**

##### **5.1. Research cohort**

The survey was conducted at the University of Hradec Králové's Faculty of Education. A specific sample of students was selected for the survey; they had already completed their bachelor's studies and generally had an idea about their future profession and had undergone or were undergoing continuous practical experience. The target group therefore consisted of students in the Faculty's master's programme. The questionnaire was given to students in daily and combined study forms. In the daily study form, the students come to school every day for seminars, practicums and lectures, which usually are not mandatory, and they choose their timetable according to their own discretion. On the other hand, the combined study form takes place usually once or twice every two weeks, on Friday or Saturday. This form is a combination of distance learning and daily study, where the timetable is firmly set and divided into block units. During this form of study, many students are already teaching under the supervision of more experienced teachers.

For quicker dissemination of the questionnaire among the respondents, there were two versions: a printed one and an online one. At first, only the online version was used, but the return rate of the questionnaires was poor, and therefore we decided to contact the respondents in person. One possible explanation for why the return rate was so low is that the questionnaire was longer, and therefore some students stopped before reaching the end or did not start it at all. Overall, 68 students (out of more than 100 contacted) in the daily study form and 133 students in the combined study form participated in the survey. We gradually sent out the questionnaires by e-mail and handed them out from December 2015 to March 2016.

In total, 201 respondents participated in the survey, 66% of whom were daily students and 34% of whom were combined students (see Table 02).

**Table 02.** Respondent Composition According to Study Form (source: the authors)

<b>Total</b>	<b>%</b>	<b>Daily form</b>	<b>%</b>	<b>Combined form</b>	<b>%</b>
201	100	68	34	133	66

## 5.2. Method

Two dimensions from the Inventory Learning to Teach Process (ILTP) were used to compare the learning patterns of two groups of future teachers in different study forms (Oosterheert et al., 2002). The whole questionnaire consists of three dimensions: 1) the concept of learning, 2) the activities of learning and regulation, and 3) the regulation of emotions. In 2015 ILTP was validated on five sets of data using confirmatory factor analysis. Based on the results of these analyzes, a revised version of ILTP, the so-called ILTP-R, was developed and used for the purposes of our research. This version of the questionnaire has only two dimensions: learning and regulatory activities and emotional regulation. For the purposes of this study, the learning-activities dimension was covered by five scales describing the different learning strategies used by future teachers: (A) Proactive, broad use of the mentor; (B) Independent search for conceptual information; (C) Actively relating theory and practice; (D) Developing views/ideas through discussion; and (E) Pupil oriented evaluation criteria. The second questionnaire dimension we used, emotion regulation, consists of two scales. The Avoidance scale expresses the extent to which future teachers actively face inconsistencies occurring during their acquisition of professional experience, while the Preoccupation scale measures the extent to which students admit uncertainty and setbacks in their initial professional experience. The reliability of these scales was different in various studies, but was acceptable (Cronbach's alpha above .60).

Combining the various values on these sub-scales, Oosterheert described four qualitatively different methods based on which future teachers learn from practice, which she later called learning patterns. The individual patterns are described above (see Table 01). They differ from each other mainly in their focus on understanding and knowledge reproduction and in the extent of self-regulation and independence during learning (Oosterheert et al., 2002). During her investigation, Oosterheert found that individual types of learning patterns differ from one another within the framework of including partial learning and regulation activities and in how one regulates one's emotions during the learning process. Independent meaning oriented learning is considered an ideal learning type, which manifests itself mainly through an active effort to develop one's own approach to teaching and through high self-regulation. Compared to other learning

patterns, the degree of preoccupation with negative experience is relatively lower (Oosterheert et al., 2002). The learning patterns were created by combining various dimensions, and their essence is captured in Table 03 below.

**Table 03.** ILTP-R Questionnaire Scales (only those used in this survey)

Dimensions/Scales		Number of items	Examples of items
<b>Learning and regulation activities</b>			
A.	Proactive, broad use of the mentor	5	I ask my mentor how he or she would deal with the same teaching situation. The practical suggestions my mentor offers to solve a certain problem are always useful in some way.
B.	Independent search for conceptual information	5	I search for theoretical information by myself to improve my knowledge about teaching and related issues. I read more about teaching than the prescribed literature on the program.
C.	Actively relating theory to practice	3	The theory that is discussed during mentoring activities helps me to interpret my teaching experiences better. The way I want to teach now is the result of constantly connecting theoretical knowledge to my teaching experiences.
D.	Developing views/ideas through discussion	4	I search for theoretical information by myself to improve my knowledge about teaching and related issues. I approach teachers in my school to ask what they think about certain educational innovations.
E.	Pupil-oriented evaluation criteria	3	My satisfaction with a lesson is largely determined by the extent to which a good working climate is present in the classroom. I am particularly satisfied with a lesson when pupils' engagement during lessons signals that the subject matter has come across.
<b>Emotion regulation</b>			
F.	Avoidance (recoded)	5	I try to determine my own contribution to a lesson that went wrong. After a lesson that has gone badly, I try to find a solution for the next lesson.
G.	Preoccupation	4	It takes a while before I have processed a bad teaching experience. When a lesson gets out of hand in terms of classroom management, I feel taken aback.

With regard to the connection between the aforementioned behaviour patterns in future teachers and the ILTP questionnaire, the inactive/survival oriented learning pattern shows a high avoidance score (F), while other scales have a low score. The reproduction oriented learning pattern has a high score in proactive, broad use of the mentor (A), developing views/ideas through discussion (D), and preoccupation (G).

The dependent meaning oriented learning pattern shows higher results in pro-active, broad use of the mentor (A), independent search for conceptual information (B), developing views/ideas through discussion (D), and preoccupation (G). The independent meaning oriented learning pattern scores high for pro-active, broad use of the mentor (A), independent search for conceptual information (B), actively relating theory and practice (C), developing views/ideas through discussion (D), and pupil oriented evaluation criteria (E).

The questionnaire was used on a Czech cohort by Juklová (2016) who tested its psychometric properties. To characterise future teachers in terms of individual cognitive and emotional strategies, an arithmetic mean and standard deviation were calculated for each scale. To compare these values in terms of study form, a paired two-sample t-test was used.

## 6. Findings

Table 04 below contains the average values of all students on individual scales. Students expressed the frequency of their learning preferences on a five-point Likert-type scale: the higher the value, the more often future teachers use the respective cognitive or emotional strategy. From the mean values on the cognitive-strategy scales, it is obvious that students globally orient themselves the most towards pupils as a source of information and use strategies such as discussions, searches for conceptual information, and the relating of theory and practice at a slightly above-average level. High values of standard deviations on all scales (except for pupil orientation), however, hint at the fact that the students in the cohort differ significantly from one another. The values of two emotion-regulation scales hint at the fact that, overall, students feel an average level of preoccupation and below-average avoidance, but in the area of emotion regulation we are also looking at a non-homogeneous cohort of individuals who differ significantly from one another.

**Table 04.** Results of the Paired Two-sample t-test

Dimensions/Scales	Daily form		Combined form		T-test
	M	SD	M	SD	
<b>Cognitive strategy</b>					
Concepts	3.46	.73	3.36	.84	-0.73
Theory	3.61	.89	3.11	.94	-3.54**
Discussion	3.28	.69	3.33	.78	0.40
Pupil	4.44	.67	4.39	.39	-0.58
<b>Emotion regulation</b>					
Avoidance	1.93	.92	2.08	.94	1.25
Preoccupation	3.07	.54	2.83	.85	-1.70

(M – mean; SD – standard deviation; t – t-test value; \* statistically significant on a level lower than  $p = 0.05$ ; \*\* statistically significant on a level lower than  $p = 0.01$ )

As can be seen in Table 04, the two compared cohorts differ from each other in a statistically significant manner only on one scale – the relating of theoretical and practical sources in learning. Students in the daily study form use it significantly more often in their learning than do their colleagues in the combined study form. The scale close to confirming a statistically significant difference in the values of the two groups of future teachers is the preoccupation scale. Compared to the other group, students in the daily

study form feel preoccupied more often. The students differ from each other in other strategies, but the differences are not statistically significant.

### **6.1. Learning activities and regulation activities**

*To what extent do students in daily and combined study forms search for conceptual information?*

This investigated area had an average score on the five-point scale in both monitored groups, and the difference between both values was negligible. However, students in the combined study form search more independently for theoretical information to improve their knowledge. They also more often try to find answers to their questions regarding instruction by consulting the expert literature. This can be interpreted by the fact that the instruction of students in the combined study form is divided into individual blocks; each block lasts one instruction day and usually contains just one subject. It is unrealistic for the student to acquire all of the subject matter and for the instructor to explain everything in one block. Therefore, compared to students in the daily study form, they must acquire the majority of the theoretical information through self-learning and reading expert literature in their spare time.

*How do students in both study forms construct a relationship between acquired theoretical knowledge and practical experience?* In terms of relating theory and practice, significantly higher values were found in students in the daily study form. Theory discussed during practical-experience analysis helps daily-form students interpret their instructional experience better. Furthermore, the way they want to teach in the future is mainly a result of the ongoing connection of theoretical knowledge and instructional practice to a higher extent than in combined-form students. The evaluated results can be interpreted in this way: students who already teach do not have time to study, because they are mainly working people who also have to focus on their occupation or family. One can also assume that combined-form students are already victims of “entrenchment”, and everything is related to and drawn from their practical experience.

*To what extent do future teachers in various study forms develop their opinions in a discussion?*

Similarly to the area of searching for conceptual information, the respondents from both groups scored similarly, namely an average value on the Likert-type scale. During their instructional practice, daily and combined students both ask other teachers at their school about how they resolve specific issues in their lessons. They also contact instructors at their school and ask their opinion on new educational features. Last but not least, all respondents develop their own ideas about education in a discussion. The resulting values can be explained in this way: everyone is individually interested in how to solve the various problems encountered during one’s practical experience and in the opinions of one’s more experienced colleagues. In addition, both in the daily and the combined study form, many instructors in faculties of education allow and organise discussions on individual topics so that the students can think better and more deeply about a specific issue and look at the various points of view of their peers.

*To what extent do pedagogical students use their pupils’ results or well-being as a criterion for their performance?* Of all the evaluated areas, pupil orientation scored the highest. The results of both groups were above a value of 4. Students in the daily study form scored slightly higher. Both groups of respondents said that the satisfaction they got from lesson mainly depended on how good the working atmosphere was in class. Students in both study forms also have a very good feeling from lessons in which pupil participation confirms that the subject matter was correctly transmitted and processed and that the method used by pupils

to solve problems shows that the material is being understood. The high values in all respondents can be interpreted this way: each future teacher who learns to teach wants children to be motivated by his/her way of explaining things, to be encouraged to be active, to make an effort, and to desire to somehow participate in the instruction. Each pedagogue is happy when his/her pupils understand the subject matter, are interested in it, and are not bored by the instructional unit.

## **6.2. Emotion regulation**

*To what extent do student teachers avoid or cope with unpleasant experiences and unsuccessfully taught lessons?* The lowest values of all analysed areas were measured in this sphere. The score was around a value of 2 on the Likert-type scale, with the scores of future teachers in the daily study form being a bit lower. The results in this sphere are worrying, because the questionnaire respondents said that they thought little about how they contributed to a lesson's failure and that they tried to find solutions for the next lesson only minimally. To a large extent, they do not try to determine the cause of the unsuccessful lesson or prepare the next with a particular intensity.

*To what extent do future teachers in daily and combined study forms experience longer periods of worry and related negative pedagogical experience?* In the emotion regulation section, the values with the greatest difference were in the sphere of preoccupation. However, the scores in both measured groups are around an average scale value. Daily students are a little bit more preoccupied in this regard. It takes them a bit longer to process an unpleasant instructional experience and they tend to be more disconcerted when they lose control over the class during a lesson. Some combined students have been teaching for several years, which can mean that they have already passed the period of "fighting for survival". On the other hand, daily-form students only rarely have practical experience, which can increase their preoccupation. In addition, they do not have as much experience as their combined-study peers during their practical experience.

## **7. Conclusion**

The objective of the research was to determine how future teachers learn to teach and whether there are differences between students in different study forms, and, if so, how the differences manifest themselves the most. The answers to these questions were hinted at within the framework of sub-objectives. In the learning activities and regulation activities section, only minimal differences in how students in daily and combined study forms learn to teach were found in the areas of independent searching for conceptual information, developing views/ideas through discussion, and evaluation criteria. The biggest differences in this sphere were found in actively relating theory and practice. In the emotion regulation section, avoidance and preoccupation were investigated. In the avoidance sphere, the respondents from both groups scored similarly. On the other hand, in the preoccupation sphere, there was quite a large difference between the compared groups. The possible interpretations of these results in individual spheres were described above.

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