

ABSTRACT

The essence of teacher training is the educational-psychological and subject-specific methodology subjects combined with teaching practice, when students have the opportunity to apply their theoretical knowledge to real life situations. However, beginning teachers usually encounter several difficulties.

Our paper will survey the practical questions and problems arising during engineer teacher training. It will present the opportunities and difficulties of various types of teaching practice.

Keywords: portfolio, engineer teacher training, teaching practice, lesson plan, lesson observation

ÖSSZEFOGLALÓ

A pedagógussá válás folyamata már az egyetemre kerülés előtt megkezdődik. A képzésbe belépő tanárjelölt számos iskolai tapasztalattal rendelkezik, azonban nézeteinek, tudásának, attitűdjeinek, elkötelezettségének a fejlesztésére van szükség ahhoz, hogy eredményesen láthassa el majd a feladatát (Falus, 2014). Ugyanakkor a pedagógussá válás nem korlátozódik az egyetemi tanulmányok éveire, hanem a diploma megszerzése után teljesedik ki. A pályán eltöltött idővel, a megszerzett gyakorlattal együtt a pedagógus gondolkodása és tevékenysége egyaránt változik (Berliner, 2005).

A tanárképzésnek a pedagógiai-pszichológiai, szak módszertani tárgyak és az iskolai gyakorlatok adják a gerincét. A kezdő pedagógusok az iskolai gyakorlatokon szembesülnek az iskolai valósággal, ekkor nyílik lehetőségük az elméleti ismeretek gyakorlatban való alkalmazására. A pályakezdés időszakát szokták a „valóságokk” („reality shock”) elnevezéssel illetni, mert a pályakezdő számos nehézséggel találkozhat az iskolai életben.

Az iskolai gyakorlatok magukban foglalják az általános pedagógiai és az adott tanári szak-képzettséghez, a tanári szerepkörökhöz kapcsolódó gyakorlati ismeretek megszerzését, képességek, attitűdök megismerését, gyakorlását, a munkahely világával (iskolai élet, iskolavezetés, szülőkkel való kommunikáció, tanulókkal való egyéni foglalkozás, együttműködés) való ismerkedést, alapjártasság szerzését a tanítási, tanulási, nevelési folyamatok értékelésében, a szakmai fejlesztésekben.

Az előadás a mérnök-tanárképzés során felmerülő gyakorlati kérdéseket, problémákat tekinti át. Bemutatja a Közösségi pedagógiai gyakorlat, a Szak módszertani iskolai gyakorlat és az Összefüggő iskolai gyakorlat lehetőségeit és nehézségeit a hallgatók számára, valamint ismerteti a portfólió készítésének folyamatát.

Kulcsszavak: mérnök-tanárképzés, tanítási gyakorlat, portfólió összeállítása, szak módszertani iskolai gyakorlatok



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SUGGESTIONS FOR THE METHODOLOGY OF PRACTICAL TEACHER TRAINING

Javaslatok a gyakorlati tanítóképzés módszertanához

*Preporuke za metodologiju u praktičnom obrazovanju
nastavnika*

1. Becoming an educator

According to a Latin proverb: “Magister non nascitur, sed fit”, i.e. “One is not born a teacher but becomes one”. The process of becoming an educator starts well before starting university. Although students entering the teacher training system have a great many experiences from their own school years their views, knowledge, attitudes and commitment all need to be developed in order to efficiently perform their tasks as teachers in the future. (Falus, 2014) However, becoming a teacher is not limited to the university years, but will evolve after obtaining one’s degree. With the time spent in the profession and the experience gained, teacher’s thinking and activity both alter. (Nóbik, 2003; Berliner, 2005)

Several studies have proved that educators estimate the time required to safely navigate in their profession to last from two and a half to five years. During this time, they will have encountered enough educational situations to give them a solid base (Makó, 2016). The estimate for initiation made by extraordinary teachers is usually longer, probably because they regard the educational profession as more complex (Turner, 1995, quoted by Berliner, 2005).

Educators travel a specific path through their career (Zubora - Holik, 2017), which was described by an American scholar, David C. Berliner (2005) as a five-step development model as follows:

- novice,
- intermediate,

- competent (level of rationality),
- proficient (intuitive),
- expert (non-rational).

Iván Falus (2006) also describes becoming a teacher as a complex process, which is further complicated by several factors: the lack of self-knowledge and professional identity, the fact that their basic competencies have not yet solidified and, with all the modern knowledge gained at university, they have to adapt to the life of another institution: their new school. Beginner teachers have to learn their profession primarily “in the field”, where “they are thrown in at the deep end” to “sink or swim”. (*Imre - Nagy*, 2004)

The backbone of engineering teacher training is provided by educational-psychological and subject-specific methodology subjects, along with teaching practice. Beginner teachers are faced with the school reality during their teaching practice, when they have the opportunity to apply their theoretical knowledge.

The time of starting one’s career is sometimes called a “reality shock”, as beginning teachers are likely to encounter several difficulties in the school life. The work of the teacher consists of a large number of decisions to be made on the spot and a chain of practical skills. (Falus, 2002)

For the trainee and beginner teacher alike, in vocational training, reality shock occurs primarily in relation to discipline issues. It is a frequent phenomenon that, due to the reality shock, the democratic attitude, which characterizes the beginner teacher at first, moves into a dictatorial direction, because there is a contradiction between teacher’s thoughts and the actions thought to be effective. Moreover, in the present circumstances of vocational training, it is an almost impossible challenge to create the conditions for students’ individual development, which often leads to the early burnout and attrition of beginner teachers.

Trainee teachers or interns must overcome the difficulties of adaptation, of large class sizes and develop the ability to divide their attention. They must decide what needs to be reflected upon and what does not. During teaching, they must continuously watch students’ non-verbal signals. Should they fail to do so, they are usually not able to follow what is happening in the classroom because their attention is usually still centered around themselves.

Below are the main content categories of the difficulties awaiting beginner teachers (Szivák, 1999):

- planning, organizational and methodological problems related to the different personalities and abilities of students in the same group
 - discipline issues
 - preparedness in methodology; the lack of multiple skills in methodology and adaptation,
 - the difficulties of adaptation; personal and professional relationship within the organization (with the school management, colleagues and parents)
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- being overburdened due to organizational and administrative tasks as well as class sizes
- asking for and accepting advice; the difficulties of realistically assessing oneself and one's activities.

During the lesson observations and the school practice, however, trainee teachers gain a lot of experience, which help them overcome difficulties. Beginner teachers are guided by experienced mentor teachers, who give them advice and recommendations.

The whole of teacher training and the practical part thereof serve the continuous professional development of trainee teachers (*Falus* 2004; *Rapos* et al, 2015). Teaching practice often makes trainee teachers search answers to the following questions: how suitable am I for the teaching profession; am I able to keep discipline; have I got an interesting and colorful personality; to what extent can I divide my attention?

In summary of the above, the main aims of teaching practice are the following:

- to develop teacherly competencies,
- to converge theory and practice,
- to improve the ability of self-reflection of the future teacher.

2. The system of practices in teacher training

The requirements of teacher training are regulated by the following decrees:

- 8/2013. (30th January) Ministry of Human Resources decree on the common requirements of teacher preparation and the training and output requirements of each teaching major
- 18/2016. (5th August) Ministry of Human Resources decree on the modification of the Ministry of Human Resources decree on the training and output requirements of higher education vocational training, Bachelor's and Master's trainings as well as the common requirements of teacher preparation 8/2013. (30th January).

According to the Ministry of Human Resources decree 8/2013. (30th January), the *purpose of teacher training is to train teachers who have a wide range of professional-scientific, educational, psychological and general education as well as theoretical and practical skills and abilities.*

The aim of engineering teacher training is to train teachers who are able to teach in the field of technology and information technology in schools preparing students for obtaining a vocational diploma in technical schools, technical grammar schools as well as outside schools, in adult education, re-training and in-service training and to teach professional subjects in vocational training programs specified in the National Training List, to perform the educational tasks of schools, to perform educational research, planning and development tasks in the field of vocational training in technology and information technology; to

perform the tasks related to age-related problems and special educational needs of students participating in vocational training as well as to prepare teachers for the continuation of their studies in doctoral programs.

According to the government decree, teacher training consists of the following elements:

- theoretical and practical knowledge of education and psychology;
- special methodology (disciplinary, inter-disciplinary and subject-specific);
- educational, psychological and teaching practice running parallel with the training;
- community educational practice running parallel with the training;
- continuous individual school practice and tasks related to it;
- the portfolio.

Based on their theoretical knowledge, trainee teachers can gain practical knowledge and experience during their school practice. *School practice includes* the following:

- obtaining practical skills related to general pedagogy and subject-specific education;
- acquiring and practicing new skills and attitudes;
- getting to know the world of work (school life, school management, individual tutoring of students, cooperation)
- learning basic skills in evaluating the teaching, learning and educational processes and professional developments.

The different forms of school practice:

- running parallel with the training, performed in a school, under the supervision of a supervisor teacher, group educational and individual teaching practices during subject-specific lessons as well as lessons related to the socialization and teaching of children, in class teacher's lesson and other subject lessons. It includes lesson observation and analysis and the teaching of at least 15 lessons or sessions independently;
- running parallel with the training, *community educational practice*, performable either during the school year or the holidays, which provides experience in the following areas of school life: the organizational, management, program compilation and community building tasks related to the extracurricular activities of a given student age-group, such as camping, clubs, interest groups, etc.;
- *continuous individual school practice* performed in public education or adult education institutions, based on the theoretical knowledge and practical experiences gained during one's training, under the continuous supervision of a practical mentor and a higher-education teacher training expert. Learning the complex system of teaching and educational tasks of the school and the teacher within it, as well as getting to know the social and legal environment surrounding the school and the whole system of public education institutions. The areas of the continuous school practice: activities related to the teaching of professional subjects, basic teaching and educational activities besides the teaching of professional subjects, and getting to know the school as an organization and its supporting systems.

3. Issues arising in practical engineering teacher training

In the Ágoston Trefort Centre for Engineering Education of Óbuda University, MA-level engineering teacher training is conducted in six special fields: mechanical engineering-mechatronics, civilian and safety defense, electrical engineering, electronics, IT, technical-economic and light industry.

Students primarily attend a corresponding course, many of them already have several years of teaching experience and the majority of them teach in vocational education.

Our own study conducted in 2015 (Holik, 2016) showed that the average age of engineering teacher students at our institution was 39.96 years. 65.4 of respondents were working as teachers. 47% of those answering the survey were working in a secondary technical school (at present called: technical grammar school). Despite the fact that their average age was nearly 40 years and most of them were between 40 and 49, 28.6% of respondents had less than one year of teaching experience and 37.7% had been teaching for 5 years at most.

The above data clearly show that a significant part of our students are beginners in the teaching profession. Therefore, it arises as a legitimate question how students with a lot of life experience but little educational experience can be prepared for the teaching profession. A further question is how to develop the methodology culture of students already working as unqualified teachers. Furthermore, how an engineer shall become an engineering teacher, as several students have worked as engineers earlier in the private sector, but decided to find employment in education instead.

Another current question nowadays is how to prepare trainee teachers for the challenges of the changing requirements of vocational training and the changing educational environment in general. Vocational training has been characterized in the past 30 years by continuously *seeking new ways*. (Legislation, compliance with labor market needs, the National Qualification Register and the changing of professional and examination requirements, etc.) Another characteristic is that special needs students participate in vocational training in greater numbers than in other forms of secondary training. On the basis of the results of the National Competence Survey, it can be clearly stated that the performance of technical school students and vocational school students is significantly lower than that of grammar school students. The PISA tests have also drawn attention to the fact that the gap between the achievements of grammar school students and vocational school students is enormous. (Tóth, 2014) For both technical schools and vocational schools, a particularly large problem is caused by students who have no motivation or ambition whatsoever to study and take part in school life (Mayer, 2009). Therefore, in engineering teacher training, students have to be prepared for the current challenges of vocational training.

Our research results (Holik, 2016) showed that the engineering teachers surveyed prefer the traditional teaching methods that they had seen and learnt from their own teachers. They have also been taught the new, atypical methods, but only few of them use these in their teaching practice. Therefore, we consider it important to develop their methodology culture during their school practice.

In our training, within the frame of the *Community Educational Practice*, students teach a class teacher's class. The first issue arising here is teaching the lesson in a new environment to unknown students. This poses a problem to many of our students. A further challenge is to find an interesting and useful topic for the class and to create rapport with the students (Sanda, 2018).

4. Materials development

In order to make it easier for trainee teachers to find their way through the maze of practical teacher training, we have compiled some teaching material about the most important information.

Our materials development was built upon bibliographical sources related to teacher training (Berliner, 2015; Falus, 2002, 2004; Rapos, 2015; Szivák, 1999) and our own research (Holik, 2016; Sanda, 2018; Zubora – Holik, 2017) as well as our experience gained in teacher training.

The chapters of the teaching material entitled *Guidelines to school practice and portfolio making* are the following:

1. The system of practice in teacher training
 - 1.1. Becoming an educator
 - 1.2. The legal background to teacher training
 - 1.3. Community practice
 - 1.4. Preparation for the work of a class teacher
 - 1.5. Special school practice
 - 1.6. Continuous school practice
2. Practical information
 - 2.1. Lesson observation, observation criteria
 - 2.2. Lesson planning
 - 2.3. Methodological features
 - 2.4. Communication during the school practice
 - 2.5. Motivation and assessment during the school practice
 - 2.6. Self-reflection
3. Portfolio in teacher training
 - 3.1. The portfolio
 - 3.2. Making a portfolio in the Mahara system

The material summarizes the most important issues relating to teaching practice. It also includes practical advice and recommendations to help students' work.

The teaching material will be available to students in the form of a "traditional" book as well as e-material so that they can acquire it as efficiently as possible according to their learning style and habits.

The e-material is interactive; it includes questions and tasks, too. Pictures, model exercises and self-check question aid learning.

We trust that, as a result of the teaching materials development, trainee teachers and others interested will receive an answer to several practical questions.

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