Development of Teacher Calling in Higher Education

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TABLE OF CONTENTS

DEVELOPMENT OF TEACHER EDUCATION CENTRAL EUROPEAN RESEARCH NETWORK

Gabriella Pusztai & Ágnes Engler & Ibolya Revák Markóczi

The TECERN network (Teacher Education Central European Research Network) was initiated in 2012. Investigating higher education in the CEE region, we realized that there are several common features in the state and social context of TE. However, we do not have enough research results about them. One part of the study deals with curricular questions of TE, while the other part investigates practising teachers. Little attention has been paid to students who chose and took part in TE and their development during TE years. We can use comparative research with very limited effectiveness. The TEDS Teacher Education Development Study gathered by the International Association for the Evaluation of Educational Achievement (IEA) investigated science TE students in 2008. This development is a favourable phenomenon, because it creates an opportunity to compare prospective teachers aspiring to teach at several educational levels and we can compare national data. However, CEE countries were not involved in the study, and we cannot compare the science TE students to students preparing to teach different disciplines or students studying at different majors.

What do we know about TE students? The special self-selection process that works in TE is well known. The attraction of TE depends on the national-level prestige of the teacher profession. High status and primarily male students strive to find a prestigious profession that promises more social progress and elevation for them. If one of the TE students' parents has an HE degree, this may be the mother.

The TECERN network was established to reinforce and support research into TE in CEE countries. Eight international working groups started to work. One of the main areas focused on the educational policy aspects of TE. Since significant transformations have taken place in teacher education structures during the previous years aiming at European harmonisation, we compared the structure of TE systems, financial and institutional control and maintenance. Some of the working teams analysed curricula of TE, particularly with regard to relation and balance between academic and disciplinary knowledge; didactics, methodology and subject pedagogy; pedagogical-psychological skills and classroom practice. Others have explored how talent management works during TE and postgraduate training courses as well as doctoral education. Yet other teams analysed the recruitment into the teaching profession. The social background of teacher education students was mapped, just as the educational and economic status of their parents; spatial inequalities, gender and ethnic compositions. This group examined the effects of the lack of male teachers and the potential advantages of feminisation, as well as explored extracurricular activities and its effects: integration and professional socialisation of students during higher education, their lifestyle, health behaviour and sporting habits. We considered further the personal and social, cultural construction of teaching identities and the gender aspects of professional socialization as key issues, for the investigation of which other work teams were organized.

In 2013, the TECERN I Conference was held with the participation of researchers from six central and eastern European countries in Debrecen, where the number of participants was more than one hundred. One of two keynote lectures presented the edifications of TEDS analysis, and the other key note presenter dealt with the European variations of the structure of TE. The members of eight workgroups negotiated the state of arts in TE research of the CEE region and discussed their current research results. The aim of the conference was to show the potential modes of the collaboration in comparative education research, and to provide an opportunity to exchange experience.

In June 2015, we organized the TECERN II Conference, in which eight countries were represented. We had the opportunity to follow four keynote presentations. One about the new Finnish model of research-based TE, which is the phenomenon-based TE, and two other teams analysed the consequences of the Polish and Slovakian TE reforms, and the fourth one presented the TALIS research. Furthermore, 27 sections dealt with several research areas.

In the present volume our papers are arranged according to the three key areas of TECERN II Conference. The first chapter deals with what special role of teacher education in connection with cultural communities, papers in the second chapter investigate, how TE of the CEE region prepares students to special classroom situations. In the third chapter studies observe the new challenges of teaching profession.

The studies of the chapter reveal what may be the least researched area of the international literature: how the national, ethnic or religious communities living in minority status establish and run their teacher education. In the peripheral area of the EU, we performed a series of student surveys during the last decade and we had the opportunity to reveal the process of expansion of institutional supply in teacher education parallel with the establishment of church-related and ethnic minority HE in the post-communist area. We revealed that the rapid expansion of higher education could not satisfy student demands. For a while, certain student groups could not find higher education opportunities appropriate for them. Such student groups include for example ethnic, religious minorities usually from disadvantaged regions. These communities emerged as a response to a definite demand to train helping professionals, among others teachers, because they consider teachers more important for the survival and reproduction of the community.

UNESCO set down that indigenous groups in the world "often face discrimination in school that is reinforced by the fact that the language used in the classroom may not be one that they speak". The chapter entitled Teacher education and community points out that the indigenous minorities living in Central and Eastern Europe must be taught in language they speak at home, and it is time to ensure all of learning materials and instruments of their assessment in a language they are familiar with. This is unquestionably an essential condition of social equality. The effectiveness of study is not hindered by using a foreign language in classrooms and reading textbooks in kindergarten, primary school and higher education.

However, new generations of native-speaking teachers are needed, whose first language is the local language. Their training was a neglected issue in the twentieth century in CEE, but the right of cultural communities to classroom equality is self-evident in modern pluralist Europe. In reference to this issue, several questions emerge: whose duty is to compile a culturally relevant curriculum and who is responsible for financing minority TE institutions? How is it possible to ensure autonomy for the minority communities and

govern education systems which become more and more centralized?

The first study of the first chapter deals with the provision of the teacher training needs of the Serbian Hungarian community. The second study analyses the state of teacher education institutions in several regions of the Hungarian community in Slovakia. The first local language teacher training college for ethnic Hungarians in Ukraine started to work at the end of the 1990s, in an educational system with very different traditions.

The fourth study reveals that it is important to ensure native-language teachers not just in general and elite tracks of education, but also in vocational training. In the fifth paper the author points out that the religious and denominational communities also constitute an important value of European diversity. These communities provide crucial contribution to teacher education with their social mission.

The incredibly rapid acceleration of cultural pluralization in Europe makes the coexistence of different cultures and values an everyday experience. Therefore the last study of this chapter draws our attention to the new challenge that is the development of axiological awareness and axiological competence in teacher education.

In the chapter titled Preparing for the Classroom Work, a set of studies dealing with the practice and methodology of teaching are found. One of the studies is the description of a method designed to measure the progress of pupils in terms of solving science problems. The method is now widely used in some schools in Hungary and Germany. In another study, an important method of problem solving, the research-based learning and teaching is analysed by the author in teaching mathematics to pupils in lower elementary schools. In this chapter, we also gain an insight into the problems of assessing the efficiency of language learning. In the study dealing with the topic, the author examined the most recent conceptualisation of Language Assessment Literacy (LAL) for the classroom teacher, and related it to the curricular requirements of English teacher training in Hungary and English language teachers' ability to make assessment of learning is the most important qualification requirement in the area of assessment. An identified international problem of teaching is how to determine the appropriate methods for dealing with children with learning difficulties. One of the studies in the chapter examines how a teacher can be successful in teaching such children. Similarly, the next chapter also offers examples to what inclusive education means in teaching difficult children. The last study in the chapter is a historical survey from the Teachers Institute in Spisska Kapitula, concerning its formation, its activities so far and how it assists teachers in preparing for working in a primary school.

One of the chapters is titled Teacher Career, and it deals partly with individual career paths, in order to take a very close look at the career paths of would-be and practising teachers. Gender approach plays a dominant role in this chapter, since the distribution of the two sexes is similar in all the countries concerned. The first chapter looks at the gender issue from a broader perspective, as its observations of gender relations are not restricted to classroom and the teaching process, but it also involves extracurricular and social relations as well when addressing gender differences. We find the differences between the learning ambitions of men and women at the higher levels of education, too. The second study relies on the findings of a pilot study when it not only seeks the reasons for the differences, but also analyses the differences between the academic success rates of the two genders. The well-known phenomena of the labour market (vertical and horizontal segregation, double workload, balancing between career and private life) are also characteristic

of the domain of higher education. The final conclusion of the examination is that we cannot talk about gender inequalities exclusively, since individuals are not only characterized by their gender, but also by e.g. geographical location, where they live, their social class, the socio-economic environment of their families, their age, ethnicity and sexuality. The following study aims at describing the complexity of the phenomenon of feminization in schools. The author deals with the feminization of the teaching profession, and in the article, underpinned with a number of statistical facts and figures, the author analyses the decision making mechanisms and motivation of male and female teachers. Motivation rooted in gender roles may be observed in one's process of becoming a teacher, as well as in the practise phase at the beginning of one's career. A survey of the various school types, profiles and subject majors clearly shows the "feminine" and "masculine" trends. The last chapter addresses this issue in detail, through an examination of the science subjects at schools, in which women are underrepresented. The author examines the men and women working in Science, Technology, Engineering and Mathematics (STEM) from various, special aspects. An answer is sought, among others, to the problem of women who become intimidated when the idea of entering these jobs arises. The study also deals with the success and efficiency of teachers and students in STEM, what gender differences are observed in the teaching and learning processes at the top levels of education. Last, but not least, the study deals with the balance of career and private life, with a survey conducted among the PhD students, studying various subjects of STEM.

TEACHER EDUCATION AND COMMUNITY

HUNGARIAN-LANGUAGE HIGHER EDUCATION AND PRIMARY TEACHER TRAINING IN VOJVODINA

Irén Gábrity & Molnár, Zoltán Takács

ABSTRACT

For the quick and efficient reform of the Serbian higher education system it was necessary to set up an accreditation system based on appropriate European norms after 2005. Thanks to these changes and in the light of positive selection, new institutions, new majors, and new programs have been established. The Teachers' Training Faculty in Hungarian was established in these strict circumstances in 2006. Regarding minority languages as the languages of instruction in higher education, not many improvements have been detected so far, although the regional authorities of Vojvodina are continuously proposing the use of minority languages in admission, consultations and lecturing in higher education. In the opinion of the local-regional elite, the new Teachers' Training Faculty in Hungarian provides a home for the formation of the Hungarian elite and the teaching of arts and sciences in Hungarian. The main driving force for the emergence of the Hungarian minority in Serbia is the continuous acquisition of new knowledge resulting from the retraining and renewal of the local intelligentsia and civic middle-class. With co-operation among institutions in the Serbian-Hungarian border region, the available programs could be utilized rationally, considering the common interests of all interest groups in higher education.

INTRODUCTION

In 1920, as stipulated by the Treaty of Trianon, two thirds of the territory of Hungary was attached to the neighbouring countries. A 20,829 km2 area in the south of Hungary, with a population of 420,000, became part of the Kingdom of Serbs, Croats and Slovenes (later Yugoslavia). At present there are 300,000 Hungarians living in the Autonomous Province of Vojvodina in Serbia, one of the successor states of Yugoslavia.

A proper Hungarian-language school system and teacher training program are vital for the future existence of Hungarian communities outside Hungary. In the light of the modernisation process underway in higher education the question arises as to the present state of teacher training of Hungarians outside Hungary. To what extent is it influenced by politics; who acts to make attempts at reform a reality; how does it benefit the Hungarian community? Tamás Kozma argues: "The 'Bologna Process', just like any change in policy, has its roots deep inside the social and political environment of the given political entity (i.e. in most cases a country). It seems 'from below' as if the 'Bologna Process' were just an excuse for a government in power to draft, pass and implement decisions on the agenda regarding higher education. Consequently, the 'Bologna Process', especially in countries that went through democratic transformation around 1989, is deeply politicised, which those who are affected often cannot or will not acknowledge." (Kozma, 2008: 16).

THE CHARACTERISTICS OF HUNGARIAN-LANGUAGE HIGHER EDUCATION IN VOJVODINA[1]

In the 2012/2013 academic year there were 9 colleges and 14 faculties at the University of Novi Sad where Hungarians of the Vojvodina Province, 3,563 of them in total, studied.[2] For the Hungarians of Délvidék (the "Southern Region", an area with a significant Hungarian minority, which mainly consists of the Autonomous Province of Vojvodina) there exists no autonomous Hungarian higher education. Partially or completely Hungarian-language courses are offered at two faculties of the University of Novi Sad and two colleges in Subotica (*Table 1.*). Courses exclusively in the Hungarian language are available at the Teachers' Training Faculty in Hungarian in Subotica, (part of the University of Novi Sad), the Technical College of Applied Studies of Subotica, the Department of Hungarian Studies of the Faculty of Philosophy of the University of Novi Sad and the Academy of Arts of the University of Novi Sad (a degree course in theatrical arts every second year).

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1 This section is a summary of the 2013 monograph by Zoltán Takács: "Felsőoktatási határ/helyzetek" [Borderlines in Higher Education]
2 There were 62,647 university students in the Vojvodina Province in the 2012/2013 academic year.

Table 1. The number of Hungarian students in Vojvodina, 2012/13 (N, %).

Faculties of the University of Novi	University students					
	total (N)	Hungarians (N)	Hungarians (%)	studies in Hungaria	took the entrance	language of training
Faculty of Civil Engineering in	628	138	22.0	21	26	partly Hungarian*
Faculty of Economics in Subotica	5 653	329	5.8	60	43	partly Hungarian*
Teachers' Training Faculty in Hungarian in	251	248	98.8	218	68	Hungarian
Faculty of Education in Sombor	974	36	3.7	0		Serbian
"Mihajlo Pupin" Technical Faculty in	1 778	126	7.1	0		Serbian
Faculty of Philosophy in Novi Sad	5 261	299	5.7	75	24	partly Hungarian*
Faculty of Law in Novi Sad	4 970	110	2.2	0	9	Serbian, with Hungarian
Faculty of Agriculture in Novi Sad	3 502	160	4.6	0	12	Serbian
Faculty of Technical Sciences in Novi Sad	9 956	547	5.5		32	Serbian
Academy of Arts in Novi Sad	776	67	8.6	14	n/a	partly Hungarian*
Faculty of Medicine in Novi Sad	3 474	159	4.6		0	Serbian
Faculty of Technology in Novi Sad	1 030	47	4.6		6	Serbian
Faculty of Sport and Physical Education in	1 634	59	3.6		0	Serbian
Faculty of Sciences in Novi Sad	5 837	459	7.9	60	26	partly Hungarian*
Total	45 724	2 784	6.1	388	246	

Provincial public colleges	College students					
	total (N)	Hunga rians	Hungarians (%)	studies in Hungarian	took the entrance	language of training
Technical College of Applied Studies,	758	498	65.7	492	196	Hungarian
Preschool Teacher and Sport Coach Training	510	69	13.5	47	16	partly Hungarian*
Preschool Teacher Training College of	325	15	4.6	0	0	Serbian
Technical College of Applied Studies,	780	52	6.7	0	0	Serbian
Preschool Teacher Training College	524	6	1.1	0	0	Serbian
Preschool Teacher Training and Business	540	3	0.6	0	0	Serbian
Preschool Teacher Training College of	622	12	1.9	5	n/a	partly Hungarian*
Novi Sad Business School - Business	2 827	65	2.3	0	0	Serbian
Technical College of Applied Studies, Novi	1 702	59	3.5	0	0	Serbian
Total	8 588	779	9.1	544	212	

Source: edited from the data issued in 2013 by the Provincial Secretariat of Culture and Education, Autonomous Province of Vojvodina
NB: The asterisked (*) institutions offer some courses in Hungarian and, depending on the lecturer's willingness, students can take the exams in Hungarian even if the language of the course is Serbian.

Among the problems of minority higher education, Gábrity Molnár (2006a) highlights the disadvantage of Hungarian young people in Vojvodina compared to their majority peers. The number of Hungarians entering college is increasing, while that of Hungarian university students is stagnating. The total number of Hungarian students has been growing steadily since the academic year 2003/2004.[3] According to Takács's (2009) calculations, the ratio of university and college students is 5.59% in the Hungarian 20 – 35-year-old population, which is half the proportion of students in the entire population of Vojvodina in that age group (11.5%). Gábrity Molnár's (2006b) data show that the proportion of Hungarian students within the entire student population is hardly above 6%, which is insignificant compared to the 14% proportion of the Hungarian population in Vojvodina. The explanation, in Gábrity Molnár's opinion (2007), lies in the disordered state of Hungarian higher education in Vojvodina regarding school choice preferences, language of instruction, geographical-regional and rational principles and low-budget solutions.

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3 The proportion of Hungarian college students has been fluctuating between 6.9 and 11.3% (579-931 persons) over the past 15 years. The proportion of Hungarian university students is lower: between 5.6 and 6.6% (1703-2833 persons).

Pusztai (2006: 43) refers to research findings in the ecology of education revealing that easy accessibility to institutions of higher education is very important to low-status young people in less developed microregions, as more of them (including members of minority communities) enter higher education if there is an institution in the immediate vicinity. Besides, easy accessibility to institutions of higher education, along with the availability of institutional services, feature among essential student expectations (Rechnitzer, 2011).

HIGHER EDUCATION IN MULTIETHNIC SUBOTICA

The town of Subotica is traditionally multicultural; it is inhabited by Hungarian, Serbian, Croatian and Bunjevci communities. Being the second largest town in Vojvodina after Novi Sad, it has a population of around one hundred thousand (96,483)[4].

Subotica is home to some of the off-site faculties of the University of Novi Sad (Economics, Civil Engineering and Teacher Training in Hungarian) as well as some state colleges such as the Technical College of Applied Studies and the Preschool Teacher Training College (see Table 2).[5] Public institutions in the town are either managed mostly by Serbians or mostly by Hungarians.

While the standpoint of institutions managed mostly by Hungarians is mainly influenced by the interests of the Hungarian minority, the standpoint of Serbian faculties is centred around their dependence on the University of Novi Sad.

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4 The ethnic composition of the Subotica district (town and other settlements in its catchment area, altogether 141,554 inhabitants) is the following: Hungarians 35.7%, Serbians 27%, Croatians 10%, Bunjevci 9.6%, other ethnic groups or not responding 17.7% (Popis, 2011).
5 This study is not concerned with the investigation of private institutions.

Table 2. Ethnic composition of students at higher education institutions in Subotica, 2013 (N, %).

Higher education institutions in Subotica	Students – ethnic composition								
	total (N)	Hungarian (N)	Hungarian (%)	Croatian (N)	Croatian (%)	Bunjevci (N)	Bunjevci (%)	Serbian (N)	Serbian (%)
Faculty of Civil Engineering	628	138	22.0	13	2.1	10	1.6	429	68.3
Faculty of Economics	5 653	329	5.8	82	1.5	23	0.4	4 762	84.2
Teachers' Training Faculty in Hungarian	*251*	*248*	*98.8*	*0*	*n/a*	*0*	*n/a*	*0*	*n/a*
Technical College of Applied Studies	758	498	65.7	41	5.4	27	3.6	139	18.3
Preschool Teacher and Sport Coach Training College of	510	69	13.5	25	4.9	5	1.0	242	47.5
All students in Subotica	*7 800*	*1 282*	*16.4*	*161*	*2.1*	*65*	*0.8*	*5 572*	*71.4*
Other higher education institutions in Vojvodina	46 512	2 281	4.9	494	1.1	61	0.1	37 717	81.1
Total:	54 312	3 563	6.6	655	1.2	126	0.2	43 289	79.7

Source: edited from the data issued in 2013 by the Provincial Secretariat of Culture and Education, Autonomous Province of Vojvodina

We estimate the number of university students in Subotica to be 6500-7000 (including the Novi Sad department of the Faculty of Economics as well as students of public and private institutions). The number of Hungarian students is about 2000. Negative demographic trends are a problem, as the number of Hungarian students is on the decrease. This may be due to low birth rates and emigration. Many consider migrating to Hungary in order to study as an option.[6] Hungarians are less likely and less willing to take part in higher education than the majority.

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6 Meanwhile the number of Hungarian university students has decreased: in the academic year 1966/67 their number was 4300, which is nearly twice as much as today. In 2000 there were almost 1500 Hungarian students studying at public institutions of higher education in Novi Sad, and around 1100 in Subotica. Three years later there were 1600 of them in Subotica, while only 1230 of them in Novi Sad. Hungarian young adults were more inclined to opt for fully or partially Hungarian-language institutions in Subotica, which is also explained by cheaper rent and easier travel opportunities. In 2012 the number of Hungarian students from Vojvodina studying in Hungary was nearly 1400; at the same time, the number of students had decreased in both Subotica and Novi Sad (Takács–Kincses, 2013).

Figure 1. Distribution between faculties in Subotica and proportion of first-year students from Vojvodina according to place of residence (2010/2011) (%).
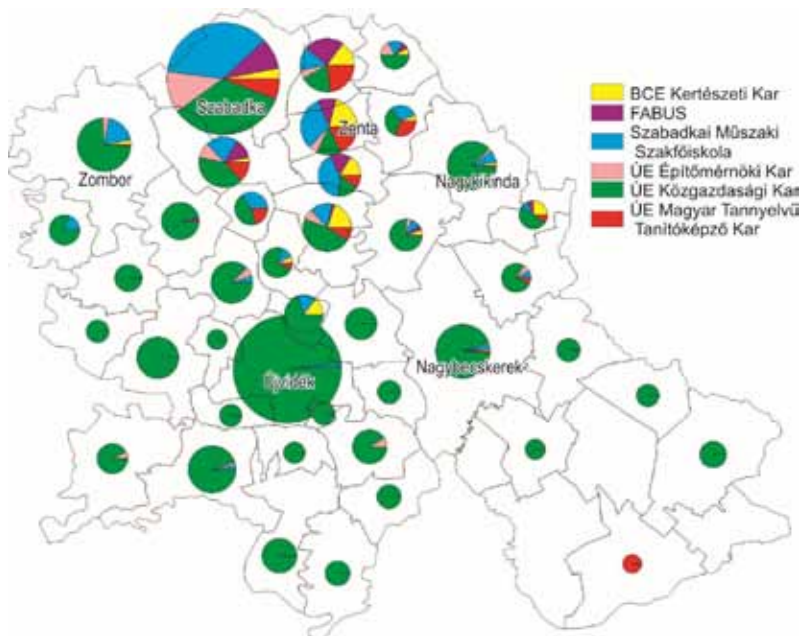
Nagybecskerek	Zrenjanin
Nagykikinda	Kikinda
Szabadka	Subotica
Újvidék	Novi Sad
Zenta	Senta
Zombor	Sombor
BCE Kertészeti Kar	Faculty of Horticultural Science of Corvinus
FABUS	Faculty of Business in Service of EDUCONS
Szabadkai Műszaki Szakfőiskola	Technical College of Applied Studies, Subotica
ÚE Építőmérnöki Kar	Faculty of Civil Engineering of the University of
ÚE Közgazdasági Kar	Faculty of Economics of the University of Novi Sad
ÚE Magyar Tannyelvű Tanítóképző Kar	Teachers' Training Faculty in Hungarian of the

Source: edited from the internal databases of institutions in Subotica. Cartography: Dr. Patrik Tátrai, Geographical Institute, Research Centre for Astronomy and Earth Sciences of the Hungarian Academy of Sciences, 2012.
NB: Corvinus University of Budapest has an off-site department in Senta. The centre of the Faculty of Business in Service of EDUCONS University is Sremska Kamenica; the Hungarian department of this private faculty in Subotica was discontinued in 2015.

THE CIRCUMSTANCES OF THE TIMELY LAUNCH
OF HUNGARIAN-LANGUAGE TEACHER TRAINING[7]

There is a lack of teachers in Hungarian public education in Vojvodina. While there seems to be a sufficient number of primary school teachers teaching in the first four years of primary school in Vojvodina (except in remote villages), a growing shortage can be observed in the number of teachers who teach in the 5-8th years of primary school or in secondary schools. As most Hungarian teachers studied in the Serbian language, they are not familiar with the Hungarian terminology of the profession; many of them have not even taken part in psychological-educational or methodological training. The phenomenon shows that the shortage of Hungarian-language Maths, English, Technology and Music Education teachers must be urgently remedied.

The Hungarian-language Teachers' Training Faculty in Subotica was registered in 2004 (temporarily at the Commercial Court in Subotica) based on the decision of the Parliament of the Autonomous Province of Vojvodina. From 31 January 2006 it forms part of the University of Novi Sad, with the following new name: Teachers' Training Faculty in Hungarian of the University of Novi Sad. Thus the Subotica off-site department of the Faculty of Education in Sombor became independent. "We expect about 200 students in total at the launch of the faculty. We took over 13 employees from the Faculty of Education in Sombor, 10 of them with academic tenure. The Council of the University of Novi Sad discontinued its Subotica off-site department of the Faculty of Education in Sombor; in its stead the Teachers' Training Faculty in Hungarian is established in Subotica. The institution is going to form part of the University of Novi Sad, which is not a bad solution, even if, according to the new Law on Higher Education, we cannot have our own bank account, only a subsidiary account. Therefore the Teachers' Training Faculty is not an autonomous legal entity; it does not even have doctoral training. We did not want this, we did not plan this…" (Orosz 2006).

During the establishment of the new faculty Hungarians in Vojvodina asked for positive discrimination many times, as many in the university circles were adamant about the principles laid down in the Bologna declaration (number of teachers, appointments, infrastructural conditions). It seemed likely that the "Bologna Process" was just an excuse to draft the decisions on the agenda regarding higher education, maybe even to slow down the establishment process of the Teachers' Training Faculty in Hungarian. Although the deed of foundation included a master's course as well, the shortage of professionals was only remedied in the academic year 2007/2008.

TRAINING PROGRAMMES, CURRICULA – TASKS TO BE SOLVED

The curricula of Serbian and Hungarian teacher training were similar until 2006. For a long time, teachers were trained on the basis of a centralised state curriculum and methodology. From the ministry's point of view this was very convenient, because it enabled them to exercise control over minority higher education. If there was a lack of Hungarian staff at a department, they could "temporarily" be replaced with Serbians for years to give

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7 For a summary of the past of Hungarian-language education and teacher training in Vojdovina see Gábrity Molnár – Takács 2015

lectures and examine students. The introduction of the Bologna system and the independence acquired by Hungarian teacher training have made it possible for the Teachers' Training Faculty in Hungarian, in accordance with Serbian legislation, to have its self-developed training programmes, which were previously approved by the senate of the university, accredited.

At present, the Teachers' Training Faculty in Hungarian offers practice-oriented academic bachelor's and master's courses in two degree programmes. In the academic year 2014/15 the number of enrolled students was 178 in the four years of the bachelor programme and 40 in the master programme.[8] Most courses are interdisciplinary. At the end of their training, students graduate as certified primary teachers or certified preschool teachers.

At that point they can choose whether to enter the labour market or deepen their methodological knowledge on the one-year master course and receive a degree as a master primary teacher or master preschool teacher.[9] Besides lectures in the traditional sense, students take part in practical training and seminars, as well as conducting independent research. All this is provided for by lecturers holding academic titles, visiting professors from Hungary, laboratories and other state-of-the-art technical facilities. The curriculum contains general courses, basic courses in education and psychology, various subject and subject methodology courses as well as optional courses. Fourth-year students have several hours of teaching practice. At the end of their studies they have to write and defend a thesis.

There are currently 43 lecturers at the faculty, 29 of them are associate professors and professors (8 of whom are contributors with part-time employment or external lecturers) and 14 of them are assistants (assistant lecturers or research fellows). Unfortunately the number of teachers is not satisfactory, as it is hard to carry out the tasks laid down in the newly accredited curriculum with the current number of lecturers. The faculty needs education teachers, psychologists and sociologists who are also qualified to teach. In the administrative branch there are 15 qualified employees, but some positions, such as project manager, economist-senior accountant or others, are yet to be filled. Due to the austerity measures imposed by the Serbian government in 2014, however, new staff cannot be hired in the public sector.

It is vital to train professionally well-educated preschool and primary school teachers so that they can also fulfil other requirements such as spreading Hungarian intellectual and general culture and national self-consciousness, educating morality, community building, organising activities or preserving traditions. Graduates, due to their knowledge and qualifications, can make a carrier not only as preschool or primary school teachers, but also as journalists, event organisers, librarians, teachers of religion or employees of local authorities in places with a Hungarian minority.

There is an ongoing additional programme for those studying for a second degree at the faculty. Since it is only worthwhile for the course to provide training for a certain number of years for those professions that change and become quickly filled in the

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8 In 2015, there will be 35 places for students to be admitted to the first year. The studies of twenty of these students will be funded by the state and 15 will have to pay a tuition fee. The preschool teacher training programme will admit 15+5 students. The entrance exam includes an aptitude test, where speaking, physical and musical skills are tested.

9 According to the newly accredited curriculum, from the academic year 2014/15 preschool teachers can take part in master's training as well.

regional labour market, specialisation programmes must be flexible and adaptable. An example for this was the regional event organiser programme, which started in 2009 with the cooperation of the Juhász Gyula Teacher Training Faculty of the University of Szeged (T. Molnár, 2009).[10] The advantages of this programme can be summarised in the following: the degree acquired at the Teachers' Training Faculty is sufficient to meet the input requirements; however, since the specialisation programme does not offer a degree, but only a certificate of professional qualification, there is no need for degree accreditation. The certificate was issued by the University of Szeged, but students did not have to travel there (which can be difficult as there is an external border of the Schengen Area between Hungary and Serbia), because the consultation centre was instituted in Subotica.[11] The faculty in Subotica also took part in a shared IPA project with the aforementioned faculty of the University of Szeged: Educational Cooperation for Disadvantaged Children and Adults (2013–2014).

The master's training for teachers at the Ágoston Trefort Centre for Engineering Education of Óbuda University (Budapest) was launched in a similar way in 2012. A four-semester training is held at the faculty in Subotica for 20 people. The programme offers an exceptional qualification, since those who complete it become certified engineering teachers (i.e. computer scientist and engineer). There are some problems concerning the Serbian accreditation of foreign programmes, yet preschool and primary school teachers who are on the lookout for jobs are interested in these kinds of further education course.

The accreditation process is underway for the following two programmes: certified communicator bachelor's degree, and bachelor's/master's/PhD specialisation programmes in social gerontology (the latter in cooperation with a Slovenian partner). Both programmes offered in Hungarian would satisfy a significant demand in those fields in Serbia.

The faculty has a close relationship with many institutions from Serbia, Hungary and other countries enabling it to engage in interchange programmes as well as shared educational and research programmes: University of Szeged, University of Debrecen, University of Pécs, Eötvös Loránd University, Óbuda University, J. Selye University (Komárno), Partium Christian University (Oradea), Josip Juraj Strossmayer University of Osijek. CEEPUS and ERASMUS programmes are also being launched this year.

Annual international scientific conferences are a vital part of the life of the faculty. The lectures of the conferences are published in book and/or CD form. An international methodological conference has already been organised four times. The faculty has taken part in one international, three national and fourprovincial research projects in the past years. The fields of study were the following: the educational, cultural and linguistic characteristics of the multi-ethnic region, and the professional consolidation of teacher training in Vojvodina. Owing to their peripheral position, small number and the uncertain social and political circumstances, Hungarian graduates with degrees in humanities are frequently forced to change their training programmes. It is possible to organise course for professions with shortages through joint efforts and accreditation in such a way that certain types of course are available as long as they are in demand on the regional labour

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10 The Institute of Vocational Higher Education of Juhász Gyula Teacher Training Faculty of the University of Szeged and the Teachers' Training Faculty in Hungarian of the University of Novi Sad in Subotica have been professionally linked for years.

11 The course, as a carrier correction model, was financially supported by the Chance for Stability Public Foundation, while the launch of an experimental year as well as the preparation of the curriculum and educational materials was financed by the Homeland Fund.

market. Flexible shifts from one programme to another and specialisation courses offered in Hungarian can increase the chances of Hungarian graduates with less utilisable degrees finding employment in the region, and thereby their tendency to emigrate can be curbed. (Gábrity Molnár, 2009).

Even from our present perspective a decade later, the establishment of the Teachers' Training Faculty in Hungarian was economically and socially well justified, but since then it has become necessary to renew the profile of teacher training, and, moreover, to enable students to obtain a second degree. There is an ongoing debate about the prospects and institutional forms of Hungarian higher education in Vojvodina. The issue of founding a university was raised publicly again in December 2012. The statement made by the higher education councillor of the Hungarian National Council concerning the foundation of an "independent Hungarian university in Subotica" met with a strong reaction; yet it has not been supported by either the academic elite or political actors. The next time it was put on the agenda was in April 2013 at the meeting of Hungarian scientists in Vojvodina organised by the Hungarian Academic Council in Vojvodina. The issue was dealt with by the Hungarian National Council, coordinated by its president Tamás Korhecz until 2014, when a new president was elected.

A year later, the participants of another conference organised by the Hungarian Academic Council in Vojvodina emphasised the following in their final declaration: "the Meeting of Scientists 2015 finds it necessary to develop a new strategy for the research and development of higher education, to identify the outlines of regional development, priorities and resource structure, and to work out a plan for the development of the Hungarian university staff in Vojvodina and for the recruitment of young academic professionals, coordinated by the Hungarian Academic Council in Vojvodina and with the cooperation of the Hungarian Academy of Science's External Public Body. In addition, the Meeting supports and urges the launch of new Hungarian-language bachelor's programmes accredited in Serbia, the expansion of the range of Hungarian-language master's programmes and the launch of new doctoral schools, as it is mainly university education in our homeland that can guarantee that our young people will decide to stay in this country. The more efficient teaching of the Serbian language is a further challenge for our school system. We also find it necessary to establish new institutions of higher education (the University of Subotica) and research."[12]

However, the declaration has not been followed by any real discourse, because the problem is still not well received by either the Serbian or the Hungarian political elite in Vojvodina. The main reasons for this are the low number of Hungarian students and the lack of financial resources. Nor is the establishment of a new university in Subotica supported by the University of Novi Sad.

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12 see http://www.vajma.info/cikk/kozlemenyek/2619/A-Tudostalalkozo-2015-zaronyilatkozata.html

THE POSITION OF TEACHER TRAINING IN VOJVODINA IN THE CONTEXT OF THE BOLOGNA PROCESS

The introduction of the Bologna Process in 2001 was part of Serbian higher education policy during the process of the political transformation. The Ministry of Education in Serbia, through centralisation and control, makes efforts to put an end to the considerable chaos both in state higher education, which is fairly marked, and in private institutions. Reform is taking place rather slowly and is not without obstacles. The Bologna Process is not simply the structural transformation of higher education but also the beginning of a new higher education concept in Serbia, which will repeatedly prompt the government to pass new laws on higher education.

"During the past fifteen years higher education policy has been characterised by a triangle of relations made up of centralism (the government), autonomy (universities) and reform administration (the profession). As yet, employers and market agents have appeared to keep out of the process. Since the Milosevic era, the Serbian state has been unable to get rid of centralism, which applies to higher education as well, but the self-administration of the Tito era, when universities and students had a say in the control of higher education, still has its repercussions as they still demand their right to make independent decisions. There are two contradictory reform trends today: government-imposed regulations on the one hand, and aspirations for innovation by university circles on the other. The debates between the Ministry of Education and the autonomous universities are shaped by reform-oriented and rather impatient academic initiatives (typical of the northern province of the country, e.g. the University of Novi Sad), while the anti-reform slowness of the universities situated south of Belgrade hinders new measures." (Gábrity Molnár, 2008: 127)

In order to promote the thorough and relatively rapid reform of higher education, it was necessary to introduce an accreditation system compatible with European norms in 2005. The new system of establishing institutions, acknowledgement of degree programmes and quality control has brought about a positive selection of institutions. Under those strict conditions we composed the deed of foundation and rules of procedure of the Teachers' Training Faculty in Hungarian, while a ministry report on the higher education of minorities in Serbia included only the higher education of the Roma population (2006). The current legislation on the use of minority languages as languages of instruction does not contain any positive change, either. If a degree course is launched in two languages at a faculty, two accreditation applications have to be submitted and a double fee has to be paid. The only positive practice we can rely on is that provincial authorities in Vojvodina regularly recommend or stipulate that the possibility of taking entrance exams and having consultations should be provided in minority languages as well. This is adhered to by faculties in Subotica but not so much by faculties in Novi Sad, Zrenjanin and Sombor.

According to the vision of the local intelligentsia, the new Teachers' Training Faculty in Hungarian will be the place where Hungarian scholars and intellectuals are educated. Commissioned by the Faculty, a sociological research team carried out an analysis based on a field survey on labour market demands and the output of educational institutions in Northern Vojvodina in 2006 and 2009. They presumed that labour market demands and the output capacity of educational institutions must matched. The survey involved 156 young people. The first focus group was freshly graduated or working young Hungarians.

In 2006 there were 20 interviews and two focus group discussions involving fifteen graduates aged 22-30 in Subotica. In 2009 a questionnaire survey was conducted on a quota sample of 108 Hungarian youths in five districts (eight settlements): Subotica, Kanjiza, Ada, Zrenjanin (Muzlja, Lukino Selo, Mihajlovo) and Novi Sad. The second focus group was 13 students of the off-site event organiser specialisation programme of the Institute of Vocational Higher Education of the Juhász Gyula Teacher Training Faculty of the University of Szeged.

The summary of the research revealed the following – still timely – general statements:[13]
– Among the youth interviewed in the region there are no fully developed future prospects as to specialisation after different types of degree. Most of them would rather not continue their studies; it is only a forced alternative for them to specialise or to acquire a doctoral degree. Those with a degree in humanities, who are definitely in a worse position on the labour market, tend to seek part-time or full-time employment in fields that are not related to their profession rather than continue their studies. The specialisation and master's programme at the Teachers' Training Faculty would only become an alternative of interest if the new degree acquired there granted certain employment. Young people who cannot find employment over a long period of time even plan to take abbreviated courses.
– Hungarians in Vojvodina remain somewhat behind as regards the level of education, not because of lesser capabilities, but because their equal opportunity is impaired due to their insufficient knowledge of the Serbian language as well as the lack of Hungarian-language branches of schools, of quality teachers and of textbooks. For those Hungarians with a fresh degree who live in areas with a significant Hungarian minority the knowledge of both the Hungarian and Serbian language (or even foreign languages) is important, but, at the same time, for Hungarian youth living in the diaspora (mostly from Zrenjanin) it is not important whether people at their workplace speak Hungarian, as they speak Serbian relatively well.
– The cooperation in the planning and execution of common specialisation programmes between the Teachers' Training Faculty in Hungarian and the Institute of Vocational Higher Education of the Juhász Gyula Teacher Training Faculty of the University of Szeged is most useful, as it helps young people with primary school teacher or Hungarian teacher degrees to find a job with better prospects after acquiring a management certificate in a specialised field of humanities. Students of the event organiser specialisation programme, after completing their second degree, will fill vacancies in professions which Hungarian cultural institutions need.
– There seems to be a growing demand for interdisciplinary programmes in Vojvodina. If public universities and corresponding faculties find the utility of specialisation accredited in both countries or in one country only (i.e. either in Serbia or in Hungary), unemployment in the region will be more easily eliminated in this way.

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13 See the summary in the research report titled "A magyarokat is érintő vajdasági munkaerőpiac és az iskolai képzettség összefüggéseiről" [On the Relations between the Labour Market and Level of Education in Vojvodina also Concerning Hungarians] (Research leader: Irén Gábrity-Molnár PhD, Subotica, 30.05.2009), page 36.

CONCLUSIONS

To prevent the further marginalisation of Hungarians in Vojvodina, it is necessary to train a mobile, adaptable workforce that is able to react to changes quickly and efficiently. To achieve this it is important to improve the Hungarian-language school system. An overall knowledge management concept aimed at all Hungarians in Vojvodina would successfully motivate widespread collective identity building, the willingness to take on and achieve more and the accumulation of intellectual capital.

Establishing institutions, ensuring acknowledgement of degree and specialisation programmes and quality control has brought about a positive selection of institutions. The Teachers' Training Faculty in Hungarian was established in these strict conditions. The current legislation on the use of minority languages as languages of instruction has not led to any positive change. Higher education training in minority languages (i.e. Hungarian, Albanian) is not on the agenda of educational politics, nor is it a goal of establishing institutions. The accreditation of degree programmes is primarily planned in the Serbian language.

Original interpretations of the "Bologna Process" may develop in Serbia, as debates in ministry and university circles centre on questions of training structure, quality assurance, mutual acknowledgement of degrees, mobility and the European curricular dimension. It is still a matter of debate whether inter-governmental funds represent the control of the Serbian government over transnational education policy. One of the central tasks of the Bologna Process is to enable the mobility of students to establish the necessary conditions for later work mobility, therefore it is necessary for universities to build relationships across borders. A legally independent and high-quality Teachers' Training Faculty in Hungarian can be of help in that process.

Because of the ever-increasing competition in the global higher education market, the facilitation of the division of labour in regions on the Serbian-Hungarian border (i.e. scientific workshops and networks, universities, faculties) would be highly advantageous. The competition between university faculties located close to one another (Subotica, Novi Sad, Szeged, Osijek, Pécs) can be alleviated by regional connections (i.e. common degree programmes, teacher and student exchanges, and research projects).

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DEVELOPMENT AND COMPETITION. TEACHER TRAINING IN THE HUNGARIAN LANGUAGE IN SLOVAKIA

Katinka Bácskai & Tünde Morvai & Júlia Csánó

ABSTRACT

A number of studies have been published on Hungarian language higher education in Slovakia, dealing with students, institutions, and the past and present. The studies have shed light on the way in which - leading up to the establishment of one or other of the institutions - they were integrated into the Bologna process, how they tried to find their place in the wider educational context, or how they were closed down. (Dolník, 1994; Kozma & Buda, 1997; Szigeti, 1997; Keller, 2004; Bauer, 2004; Albert, 2004; 2006; Sidó, 2004; Bordás, 2010; Bacskai, 2011.). Studying the education of national minorities is a particularly interesting branch of research into higher education, since the institutions exist in a specific playing field (Kozma, 2011), and they are also responsible for producing the intellectuals and scientific élite of the minority community in question (Szabó, 2000; Wanek, 2000; Tonk, 2000). In this framework, the education of high school and elementary school teachers in the minority language is worth special attention, given that – in addition to increasing the number of graduates – it is also responsible for providing the appropriate conditions of education in the native language and for the quality of both primary and secondary education in that language (Keller, 2004; Fazekas, 2007). This study is designed to be included among the papers referred to at the beginning of this paragraph, and to give an insight into the situation, the regulations in place and the institutions of teacher training which are operating at present in the Hungarian language. Our study gives some historical background, but also provides brand new information; therefore, our source publications do not only include research papers but also newspaper articles and the official websites of different institutions.

INTRODUCTION

In areas beyond the borders of Hungary, Hungarian language teacher training is present in three forms: institutions fully engaged in Hungarian language training, institutions, faculties or branches engaged in parallel training in Slovak and Hungarian languages, and universities operating faculties of Hungarian language and literature or Hungarian Studies. In today's Slovakia a number of higher educational institutions have been established whose programmes include pedagogy, but only a small proportion of them deal with the education of Hungarian teachers. The objective of our paper is to introduce readers to these institutions, their history and present operation.

Any description of Hungarian language teacher training in Slovakia requires a brief background including information about the proportion of the Hungarian minority in Slovakia and their level of schooling, in order to provide a detailed context for the national minority environment in which the institutions operate. According to data from censuses

held every 10th year, it is evident that the Hungarian national minority is decreasing, both because of assimilation and the lower birth rate[1] typical in Hungarian families (). The figures in the first table illustrate that an educational expansion can also be observed among the Hungarian national minority; however, their schooling levels typically lag behind those of the majority. This is why the education of high school and elementary school teachers in the Hungarian language merits special attention. This education - in addition to increasing the number of graduates - is also responsible for establishing the right conditions for education in the native language and for the quality of both primary and secondary education (Keller, 2004; Fazekas, 2007).

Table 1. Schooling levels in Slovakia (column percentage).

Schooling level	Slovakia total			Hungarian national minority total		
	1991	2001	2011	1991	2001	2011
No schooling	25.4	20.4	15.7	21	16.3	13.3
Primary (elementary) school	28.7	21.1	15	39.5	30.5	22
Vocational high school	19	19.7	13.4	19.4	23.2	16.2
Vocational school	2.1	3.8	9.7	1.9	2.7	10.5
High school	18.3	25.6	29.6	14.9	22.1	27.5
University/College	5.8	7.9	13.8	2.9	4.5	8.7
No data	0.7	1.6	2.8	0.4	0.8	1.8
Total	100	100	100	100	100	100

Source: http://census2011.statistics.sk/, http://www.statistics.sk/webdata/scitanie/def_sr/run.html, http://sodb.infostat.sk/sodb/sk/1991/format.htm

THE LEGAL ENVIRONMENT OF TEACHER TRAINING IN THE HUNGARIAN LANGUAGE IN SLOVAKIA

In this chapter, the legal environment of teacher training in Slovakia in the Hungarian language is reviewed to show the environment in which the institutions currently operate and the rules and regulations applying to teachers entering the labour market. Two laws should be emphasised; firstly, the law on higher education that applies to teacher training in general, and secondly, the law on the criteria of operation, on teachers and teaching assistants. The legal framework of Slovakian higher education is provided by Act No. 131/2002 and its amendments on colleges. By signing the Bologna Declaration, Slovakia declared its intention to join the European Higher Education Area in 1999. As a result of the progress made in the Bologna process, a restructuring of higher education took place in September 2005 by the introduction of a 3-cycle – basic (BA), master (MA) and doctoral (PhD, DLA) – training. The education of nursery school teachers takes place within the framework of the basic training (BA), which is followed by master level (MA) training

1 The proportion of the Hungarian national minority in Slovakia was 10.8% in 1991, 9.7% in 2001 and 8.5% in 2011.

of elementary school teachers for grades 1-4. Teachers obtaining master degrees are also provided with nursery school teacher qualifications. Act No. 41/1996 relating to teachers had already made a higher education qualification a requirement for nursery school teachers, and when the 3-cycle training system was introduced, it became obvious that at least a 3-year basic training is the minimum criterion to work as a nursery school teacher. There is no specific law applying to the Hungarian language higher educational institutions. It is the above 'law on higher education' that regulates Hungarian language institutions together with the other Slovak colleges, making references if necessary to the use of a language which is not the state language. For instance, it regulates the language of the thesis to be submitted for obtaining the state exam: it may be different from the language of the state; however, submitting a summary written in the state language is a prerequisite (51.§ (3) (Morvai, 2015).

According to the law, full time students can obtain their first degree within the required teaching period at state owned higher educational institutions free. Tuition fees were introduced from the academic year 2008/2009 for correspondence course students, although earlier they could also study in higher education for free, just like full time students. In addition to preparing elementary school teachers for their master degree, the 3-year basic training does not only entitle its holders to work as nursery school teachers but also provides qualifications for teaching assistants and educators in school-operated leisure centres (Morvai, 2015).

Act No. 317/2009 on teachers and teaching assistants (zákon o pedagogických zamestnancoch a odborných zamestnancoch) and the related Decree by the Ministry of Education No. 445/2009 on the continual training of teachers and teaching assistants, on credits and attestation[2], regulate in detail the in-service training system for teachers.

The importance of the act is in setting out a career model for teachers. Linked to it, the legal status of teachers and the framework of their remuneration are regulated, while the relevant decree (445/2009) provides the starting point for setting up an in-service education system to promote the professional development of teachers. For teachers in Hungarian language schools, it is particularly important that they are provided with a right to professional improvement and further or extension training in the language in which they teach. By setting up a career model for teachers, both the horizontal and vertical levels for promotion in a teaching career have been clarified. The vertical steps include start-up teachers, independent teachers, teachers holding their first attestation and teachers holding their second attestation. A criterion for obtaining the second attestation is possession of a master level (MA) degree, so the basic training (BA), i.e., obtaining the basic degree for nursery school teachers in the case of the population under examination, is not sufficient to reach the highest level of a teacher's career. The law also defined a horizontal structure for a teaching career by listing specialisations and leading positions. Specialised areas include class teachers, educational counsellors and guidance counsellors. Leading positions include school principals, deputy school principals, leading educators and leading masters (Morvai, 2015).

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2 Special exam. It is called atestácia in Slovakian and this is how the word 'attestation' started to be used by the Hungarian national minority in Slovakia (Mayer, 2003).

CURRENTLY OPERATING INSTITUTIONS

At present, you can obtain a teaching degree in the Hungarian language at four institutions in Slovakia: at Bratislava and Prešov (institution), at Nitra (faculty) and at the independent Hungarian university at Komarno. You can also study in Hungarian at Banska Bystrica at the Faculty of Hungarian Studies of the 'Bél Mátyás' University, but this only offers training for translators-interpreters and not for teachers; therefore, in what follows we will focus on the above four institutions. A description of the institutions is possible from several perspectives. We shall start chronologically with the first Hungarian workshop to be established, which also means that we are starting out from the institution which currently has the narrowest profile, progressing to the institutions offering the widest range of training courses and the highest number of students. We will not discuss the history of scientific workshops in detail but we shall give a short description because we want to illustrate the dynamism which led from a painful shortage of Hungarian teachers (in the 1940s) to the current phenomenon of overtraining[3].

THE COMENIUS UNIVERSITY IN BRATISLAVA

The Comenius University in Bratislava (Universita Komenského) is the oldest and also the largest higher educational institution in Slovakia. This institution, established in 1919, has become important in the field of education, science and culture because at the time it provided the highest level of schooling in the Slovak language. The university has 13 faculties located in over 20 buildings and offers courses to more than 28,000 students. Students can choose from almost 1,300 degree courses.[4]

The Faculty of Pedagogy established in 1946 is not only one of the faculties with the highest number of students but also the largest teacher training institution in the whole of Slovakia. In the academic year 2014/15, 2,815 students studied at different levels of the Bologna system. The faculty's professors and lecturers train the future teachers and educators of nursery schools, elementary and high schools and special schools.[5] The Faculty of Arts of the Comenius University was set up in 1921 and has granted degrees to over 30,000 students since its establishment. It offers accredited higher educational programmes in the fields of philosophy, philology, history, pedagogy, psychology and social sciences, arts, communication, information management and journalism. At present, it consists of about 31 departments and institutes.[6] The Department of Hungarian Language and Literature has been an organic part of the Faculty since 1923. At the beginning, the teaching of

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3 This historical introduction only covers real events in the broad sense. People who know higher education in the areas beyond the borders of Hungary or even one or other of the institutions, will remember that the stories of their establishment and operation are long, and have several twists and turns. We cannot present all of this in detail, mainly due to limitations of scope, but we try to give a true presentation of the history of the institutions as they increase or decrease the range of courses they have offered as a result of European, national and local politics.
4 On the Comenius University
https://uniba.sk/o-univerzite/ (last downloaded: 14 June 2015)
5 On the Faculty of Pedagogy of the Comenius University
https://www.fedu.uniba.sk/index.php?id=109 (last downloaded: 14 June 2015)
6 On the Faculty of Arts of the Comenius University
https://fphil.uniba.sk/o-fakulte/ (last downloaded: 14 June 2015)

Hungarian language and literature took place in the framework of so-called Hungarian seminars; later on, it operated as part of the Slovak seminar and then at the department of classical languages. In the 1950s, students could still read several subjects in Hungarian; later on their number was reduced and finally totally cancelled. As a result, there was no training for high school teachers in the Hungarian language in Slovakia from 1956 until 1980 (Fazekas, 2007). The independent Hungarian department was established in 1959, but students could only read Hungarian language and literature there. The Comenius University is the oldest academic workshop in Slovakia teaching Hungarian language, literature and culture. It offers its students four special fields: editor, teacher of Hungarian language and literature, Hungarian and Finnish language and a culture - interpreter-translator speciality.[7] Apart from these specialities, students cannot study in Hungarian at the institution. The students of Hungarian most often select the German or English language or literature or history as their other major.

University of Constantine the Philosopher in Nitra

Hungarian language higher education in Nitra has also had a long history, being 55 years old this year. At the time of the second Czechoslovak Republic, when Hungarian language education was re-started, there was a painful lack of teachers. To remedy the situation, primary teachers were first trained at secondary-level institutions; then, beginning from the 1960s, a system also well-known in our country was set up in which institutes of pedagogy (later on faculties) trained elementary school teachers both for the primary and middle school levels, while universities offered training to high school teachers. The system was basically unchanged until 1990 (Fazekas, 2007). In 1960, the Hungarian Faculty of the Higher Pedagogical School operating in Bratislava was relocated to Nitra. After this, students could study at state owned institutions only at the above mentioned Comenius University and in Nitra until 2004 when the Selye University was established. The Nitra Faculty met the needs of Hungarian schools well (every year approximately 140 students graduated, who could read almost all subjects tutored by Hungarian professors) until the mid-1970s, when the rights to teach in the native language were curbed for political reasons. The Faculty also had to face multiple challenges, as a result of which there was a shortage of teachers again until the change of the political system, when conditions started to improve and Hungarian professors were employed in growing numbers by the institution (Fazekas, 2007; László, 2006).

In the 1990s a restructuring of higher education started, as a result of which colleges were promoted to the rank of – or renamed as - universities without their structure being changed. First, in Nitra (from 1992), the short-lived Nitra University operated jointly with the Agricultural College; then in 1996 the University of Constantine the Philosopher in Nitra (Univerzita Konštantina Filozófa v Nitre) was established from the college with three faculties approved by the National Council. At that time, the number of Hungarian students reached 750, but for political reasons, the restructuring was characterised by a suppression of Hungarian language training (Laszló, 2006; Fazekas, 2007). In 2002, the establishment of a Hungarian faculty (section) was achieved. The Ministry of Education of

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7 On the Chair of Hungarian Language and Literature at the Faculty of Arts of the Comenius University, see https://fphil.uniba.sk/katedry-a-odborne-pracoviska/katedra-madarskeho-jazyka-a-literatury/magyar-nyelven-v-madarskom-jazyku/ (last downloaded: 15 June 2014)

the Slovak Republic upgraded this institution with 50 years of tradition into a university in 2010.[8] In the academic year 2014/15, 2,187 out of the 9,700 students of the institution are students at the Faculty of Pedagogy.[9]

In the meantime, the number of faculties has increased to five. The youngest part of the university is the Faculty of Central European Studies offering courses to its students since 2003. The organisational entities of the faculty include the Department of Hungarian Language and Literature. In the second part of the 1950s, school reforms had an impact on the institutions of higher education. As a result, one of the three Hungarian departments operating in Bratislava was relocated to Nitra in 1960 and operated as the only independent part of the Hungarian Section within the Pedagogical Institute established in 1959. At present, it is an independent department at the Faculty of Central European Studies. Future students can select from four accredited lines of study announced every year including Hungarian language and literature teaching, Hungarian-Slovak bilingual mediator, Hungarian Studies and Finno-Ugrian studies.[10] In addition, Hungarian language teacher training is particularly important. Students of Hungarian can select from a wide range of teacher training courses at the institution (23 majors to be paired with Hungarian) but most of them either cannot be studied in Hungarian or can only be partially studied in Hungarian. The most popular pair of majors is English-Hungarian and Biology-Hungarian. Experts at the institution are of the opinion that the establishment of an independent state-owned Hungarian university had an adverse effect, since – due to normative financing – the same degree courses were advertised at both places, which resulted in a competition for students (Fazekas, 2007).

The Selye János University in Komárno

Since the change of the political system, the issue of an independent Hungarian university in Slovakia funded by the Slovak State has been at the centre of discussions, sometimes with a stronger and sometimes a weaker focus. The establishment of the planned Jókai University - also at Komárno - failed (Fazekas, 2007; Sidó, 2002). After the 2002 elections, the Hungarian Coalition Party only agreed to join the government on condition that the Parliament supported the issue of the Hungarian university. Following a parliamentary debate, the National Council of the Slovak Republic established the Selye János University located in Komárno on 23 October 2003. (The establishment of a university can only be approved in Slovakia at the highest level (Varga, 2006)). It has become the only legal entity institution of higher education in Slovakia where education is in the language of the national minority - in Hungarian. Its establishment has not only been a decisive moment in the history of Slovakia but also in the history of the European Union. Its objective is to increase the schooling level of the Hungarian national minority in Slovakia and the number of young people with higher educational qualifications. With its establishment,

8 On the history of the Konstantin Philosopher University, see https://www.ukf.sk/o-univerzite/historia (last downloaded: 14 June 2015)

9 2014 reports from the Konstantin Philosopher University: https://www.ukf.sk/images/univerzita/Uradna_tabula/VS-UKF-2014.pdf (last downloaded: 14 June 2014)

10 The Department of Hungarian Language and Literature at the Nyitra University: http://hungarologia.net/research-2/research/magyar-a-nyitrai-egyetem-magyar-nyelv-es-irodalom-tanszeke/ (last downloaded: 14 June 2014)

an old dream of the Hungarian national minority in Slovakia has come true, i.e., to be able to acquire the knowledge required for their future profession in an independent school of higher education in their mother tongue.[11]

Altogether 22 departments operate at the 3 faculties of the university, which in the academic year 2014/15 had 98 students at the Faculty of Teacher Training out of the total of 1,743.[12] Education at the Faculty of Economics started in September 2004 at the departments of economy and company management, which was later supplemented with a master course in company management. In the near future, the accreditation of business information technology is planned.[13] The Faculty of Protestant Theology of the Selye János University has an accredited master and doctoral programme. Students applying to the faculty can select from the special fields of missiology, diakonia and social services within the framework of the basic course. After completing these studies, they can further their education on the master courses of Protestant theology and in doctoral training.[14]

At the third faculty of the university, the Faculty of Teacher Training education in the Hungarian language was launched in September 2004 for future teachers in nursery, primary and high schools. Training is offered in all three cycles of the Bologna system. In addition to the training of nursery school and primary school teachers, students at basic and master educational courses can select from 10 teacher training majors.[15] The faculty is not only involved in the training of full time and correspondence course students but also in the extension training of teachers. The Federation of Hungarian Teachers in Slovakia and the Faculty jointly established the Institute of Pedagogy of the Comenius – Selye János Universities with the objective of spreading the results of its scientific workshops and good professional practice at conferences, extension training courses and in the form of pedagogical counselling (Varga, 2006). The number of students at the faculty has, relatively speaking, seen a dynamic increase over the past few years. Most applicants are enrolled. On the other hand, according to a ranking of higher educational institutions based on several criteria which is published every year, the Faculty of Teacher Training of Selye University occupied the last or penultimate place in 2014 in the ranking of the 10 faculties of pedagogy.[16]

With reference to the number of students, this year four times as many future nursery school and primary teachers study on full time or correspondence courses at Selye University as in Nitra.

The expansion experienced in higher education, however, has been unable to compensate for the negative demographic indicators of the Hungarian national minority in the institutions of higher education in Slovakia. Therefore, it is not surprising that a there is a competition for students between the two, or in the case of training teachers for Hungarian language and literature, three institutions. The negative demographic trend is the

11 On the university - University 'Selye János', see http://www.selyeuni.sk/hu/az-egyetem/az-egyetemrol.html (last downloaded: 14 June 2014)

12 The 2014 report from the Selye Janos University: http://www.selyeuni.sk/documents/Vyrocna_sprava_UJS_za_rok_2014.pdf (last downloaded: 14 June 2014)

13 Introduction - Faculty of Economics of the Selye Janos University: http://www.ujs.sk/ef/hu/bemutatkozas.html (last downloaded: 14 June 2014)

14 Introduction - Faculty of Protestant Theology of the Selye Janos University: http://www.selyeuni.sk/rtf/hu/bemutatkozas.html (last downloaded: 14 June 2014)

15 On the Faculty of Pedagogy of the Selye Janos University, see http://www.ujs.sk/pf/hu/component/content/article/42-altalanos-al/altalanos/107-a-karrol (last downloaded: 14 June 2014)

16 http://www.arra.sk/sites/arra.sk/files/file/ARRA_Sprava_2014_27_11_2014.pdf

result of the low birth rate, and the decrease in the number of school age children has an impact on the number of schools and the opportunities for teachers to find a job in their special field. At the Nitra faculty, the correspondence courses for the training of nursery school and primary school teachers are running down; the courses have not been launched for the past two academic years. The figures from Table 1 illustrate the changes in the numbers of the two competing teacher training institutions over the past few years in all majors.

1. Table. Number of students at the Faculty of Teacher Training at the Comenius University (KE) and the Selye János University (SJE TK).

Academic year	Course	Number of students KE	Number of students SJE TK
2009/2010	Full time	714	722
	Correspondence	227	547
2010/2011	Full time	688	798
	Correspondence	195	437
2011/2012	Full time	650	794
	Correspondence	172	333
2012/2013	Full time	616	749
	Correspondence	110	270
2013/2014	Full time	605	740
	Correspondence	77	210
2014/2015	Full time	558	722
	Correspondence	41	184

Source: www.uips.sk

The Institute of Hungarian Language and Culture at Prešov

It is clear that a growing number of students are enrolled at teacher training courses, but, just like in Hungary, there are major economic and schooling differences between the different regions of Slovakia, particularly between the east and the west. All of the above institutions operate in the western part of Slovakia. The youngest institution in the series was intended to bridge that gap, and that is why the Institute of Hungarian Language and Culture was set up at the Prešov University in Eastern Slovakia in the autumn of 2001. The founders wanted to ensure that the young generation graduating from Hungarian language high schools could be offered state-of-the-art training in their homeland. To that purpose, they cooperate with several departments of ELTE (Eötvös Lóránd University in Budapest), whose professors help their work.

Two training programmes are running at present, which were accredited at bachelor and master levels in 2012, i.e., the institute has had students since the academic year 2012/2013. Both educational programmes only operate as full time courses and majors

can only be selected in pairs, offering almost twenty different combinations. The other major is offered by different faculties of the university, while the subjects of pedagogy and psychology are read in the Slovak language. At present, there are 7 students in teacher training (years 1 and 2 in the academic year 2014/2015). There are 11 students in the training of translators and interpreters (years 1-3). There is also research being done at the institute. Major research areas include Hungarian language and literature involving certain historical and cultural themes; as well as the situation of the Hungarian national minority in Slovakia, mainly in the eastern region, from the earliest times up to the present. Regular Hungarian language courses have been offered free of charge to the teachers and employees as well as to interested members of the public ever since the institute was established.[17]

THE FUTURE OF HUNGARIAN LANGUAGE TEACHER TRAINING IN SLOVAKIA

In this paper, after a brief survey of the legal situation, we have attempted to present teacher training schools in Slovakia that offer training in Hungarian, beginning from their establishment up to the present day. With reference to teacher training, the position of students in the labour market following their graduation must also be examined. In this last brief section, we provide an insight into the chances for graduate students. Having received their degrees, students cannot work as independent teachers for two years; their work will be helped by a tutor. Although the law does not make it mandatory, in practice MA degrees are required everywhere because there is an oversupply of teachers since the number of children at Hungarian schools continues to decline. At a national level, the surveys into the chances of degree holders finding employment in the labour market broken down into different areas have shown that students with an IT degree have the best chances of finding a job within the shortest time after graduation. Examining social sciences in general, the unemployment indicators for teachers who have graduated as primary school teachers are not the highest (7.1%); those of students with subject teacher training degrees are higher (11.7%). On average, 6% of students with higher education qualifications cannot find a job. The number of children in elementary and high schools taught in Hungarian has decreased by over 25,000 in the last 25 years. The number of first-grade schoolchildren in Hungarian language primary schools has stabilised at around 3,500 over the past 5 years. Similarly to our country, the remuneration of teachers is not particularly good in Slovakia, either, so it is not an attractive career for young people. According to 2014 reports, teachers receive the 7th lowest salaries, EUR 561 per month in Slovakia, of all European countries. This figure is the salary for a start-up teacher, while the highest salary received by a teacher in Slovakia is EUR 760. Considering this second, figure Slovakia moves back one place in the ranking, and the order of the other countries also changes. For instance, Latvia moves into last place instead of Romania (EUR 398), followed by Lithuania (EUR 580), Macedonia (EUR 623), Romania (EUR 678), Poland (EUR 758) and then Slovakia (Morvai, 2015).

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17 The information on the institute has been provided by the head of the Phd. Institute, Mgr. Erzsébet Dobsony.

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HUNGARIAN-LANGUAGE TEACHER EDUCATION IN UKRAINE

Ildikó Orosz

ABSTRACT

This study investigates the possibilities, chances and problems of ethnic Hungarians in Ukraine in receiving an education and entering higher education by reporting on the legislative decisions and changes of recent years regarding education policy, and by reflecting on some of the anomalies of Ukrainian higher education. Our study primarily focuses on the Hungarian-language teacher education system in Ukraine, particularly in the Zakarpattia Oblast (henceforth referred to as Subcarpathia), which, nevertheless, forms part of the general system of Ukrainian higher education, which is essential to explore in order to understand Hungarian students' problems and their chances of entering a university in Ukraine. In our summary we have made proposals which may contribute to the decrease of inequalities Hungarian students in Ukraine have to face when entering a university.

INTRODUCTION

Whether a minority ethnic group is able to survive and to pass on and continue to follow its culture and national traditions greatly depends on the presence and effective operation of ethnic education. School, as a secondary agent of socialisation, offers an institutional framework for the preservation and development of indigenous minority communities' native language, for their familiarisation with national treasures such as folk songs, works of art, literature, history, etc., and for undergoing collective experiences which not only give young people a broader knowledge of their nation's culture but also encourage them to contribute to its development. If children's national identity is shaped by a supportive community which shares common roots and national values, they can find their place in the region, country or society where they live and can also find guidance to help them orientate in European or global culture. This requires teachers who are not only committed to teaching itself and to the subjects they teach but also to awakening the desire in minority children to learn about and preserve national values. Besides, one important aspect of ethnic minority existence has to be highlighted: since in most cases the majority nation has a different language, culture, and sometimes even religious tradition, coexisting communities have to learn how to get to know and respect each other's language, culture, and religion in order to live side by side in peace. In such a multicultural environment teachers have immense responsibility: it is their task to educate their students to show tolerance, empathy and mutual respect. To achieve this end, however, education politics has to provide adequate conditions for intercultural education: minority rights have to be declared in laws and regulations, education in the native language has to be provided at all levels, and equal opportunities have to be granted to compensate for linguistic, social, and other disadvantages.

THE STRUCTURE OF HIGHER EDUCATION IN UKRAINE. TEACHER EDU-
CATION IN SUBCARPATHIA.

In Ukraine there are 9 years of compulsory primary education. At the end of their pri-
mary studies students take a final exam in their schools and receive their first "output"
certificate. They can enter secondary schools and vocational schools without an entrance
exam, or, if they want to continue their studies in talent development institutions (mainly
specialised in sciences) called "lyceums" or college-level vocational institutions called
"colleges", they have to take an entrance exam. Secondary technical schools and "colleges"
are also open to those who have already completed their secondary education; for them
the period of training is shorter. Those who take their matriculation exams in secondary
technical schools – which are part of the secondary school system – receive a diploma
which qualifies them as skilled workers, and they can continue their training as second-
year students at "colleges".

Unlike in the continental system, higher education has three cycles in Ukraine. The
first is tertiary-level vocational training, which lasts for 3-4 years, based on the 9 years of
primary schooling. If students meet requirements successfully, they receive both a ma-
triculation and a vocational qualifying certificate and, according to the Law on Higher
Education passed in 2014, a so called "junior bachelor" title. This enables them to contin-
ue their studies in their field in the second year of the second – bachelor – cycle of higher
education without an entrance exam. The bachelor cycle is based on completed secondary
education (the matriculation exam) and lasts for 4 years (8 semesters) in Ukraine. The
following, third cycle is the 4-semester magister course, which is the equivalent of the
master's course in Western Europe. Depending on the accreditation of the institution, it
gives a Specialist or Master qualification. The next step is the aspirantura, which corre-
sponds to PhD education. The "junior bachelor" level, i.e., tertiary vocational training, is
the equivalent of post-secondary technical training in Hungary. Students can transfer the
credit points they have obtained there to their bachelor's studies, which provides mobility
in the system.

Preschool and primary teacher education and the training of music, art and P.E.
teachers can take place as early as in teacher education institutions which follow primary
education. Graduates receive a so-called "junior specialist" certificate and can continue
their studies in the second year of bachelor's education.

In Subcarpathia, preschool, primary, and music teacher education is offered by the
Institute of Education of Humanities of Munkhachevo State University, while preschool
teachers and youth workers are trained at the Department of Pedagogy and Psychology
of the Ferenc Rákóczi II Transcarpathian Institute. Bachelor-level teacher education is of-
fered at three institutions: Uzhgorod National University, Munkhachevo State University,
and the Ferenc Rákóczi II Transcarpathian Institute.

The Uzhgorod National University offers teacher education in all majors (biology,
mathematics, physics, chemistry, geography, history, English, German, French, Ukrain-
ian, Russian, Slovak, Czech, and Romanian) at bachelor, specialist (the latter will cease af-
ter 2016, according to the Law on Education), and master levels. Every year the university
allocates some student places to the Faculty of Humanities and Natural Sciences with the
Hungarian Language of Teaching, where the studies of 10 students of Hungarian, 6 students
of physics, 5 students of mathematics and 6 students of history are funded by the state.

Munkhachevo State University offers preschool, primary and music teacher training at all three levels, but they do not have Hungarian-language degree programmes at any of them.

The Ferenc Rákóczi II Transcarpathian Institute offers bachelor-level teacher education in the following majors: primary teacher, English, Hungarian, Ukrainian, history, geography, biology, chemistry, and mathematics. The following majors have specialist-level accreditation: history, Ukrainian, Hungarian, biology, mathematics, and primary teacher. The accreditation of a master's course in mathematics is under way.

THE IMPACT OF THE BOLOGNA PROCESS ON HUNGARIAN HIGHER EDUCATION IN SUBCARPATHIA, ESPECIALLY ON ADMISSION CRITERIA AND CHANGES IN THE OPPORTUNITIES FOR MINORITIES

Several trends in education politics have been accelerated by Ukraine's joining the Bologna process in 2005 (Kovács, 2013). The country had to face the kind of system-wide problems whose solution could not be delayed any longer (the quality of education, overwhelming corruption in higher education, the efficiency of higher education etc.). The success of plans and regulations aimed at reform always depends on how seriously change is meant by those who propose it, how determined they are to implement the measures that sometimes involve drastic changes and to deal with the most critical issues, and, finally, how much authority and power they have for the realisation of their plans. As long as there is insufficient courage to put the proposed reforms into practice, they will be no more than ringing declarations, and there will be only minor measures introduced, as a kind of compensation, instead of real reforms. This is what happened when the Bologna Process was introduced in Ukraine.

In order to eliminate the corruption that had pervaded higher education, the introduction of a uniform admission system was decided on, with reference to the Bologna Process in 2006, and a network of independent examination centres was established. This was to have provided equal opportunities for every candidate at the entrance exam by standardising admission requirements. If the state had shown a positive attitude and the former system of admission had been left unchanged, this step might have given minorities real equal opportunities. In the former system, everybody had the right to take the entrance exam in the language and to be tested on the language that had been the language of instruction in their secondary school; that is to say, those who had attended Hungarian-language schools were tested on Hungarian and in Hungarian, and the same applied to other minorities, e.g. Russians and Romanians. The new system, however, under the pretext of the Bologna Process, was aimed at the latent Ukrainisation of higher education, and thus limited minorities' options at the entrance exam.

Stanislav Nikolaenko, socialist Minister of Education and Science, in his Ministerial Order no. 607 issued on 13 July 2007, made it mandatory for higher education institutions to admit students on the basis of exams taken in independent examination centres from the academic year 2008/2009. Students, even from minority secondary schools, had to take all exams in the Ukrainian language. Moreover, whoever wanted to apply for admission to any institution of higher education, for example to study Hungarian language and literature, had to sit for the matriculation exam on Ukrainian language and literature, but Hungarian language and literature was no longer required as an entrance exam subject.

After the next elections, his successor as Minister of Education, right-wing Ivan Vakarchuk amended the above regulation in his Ministerial Order no. 1771 issued on 25 December 2007. He permitted minority school graduates to use technical glossaries at exams. Under the influence of international pressure generated by minorities in Ukraine he had to make further amendments in Order no. 33 of 24 January 2008, and minority school graduates were granted permission to be tested on technical subjects in the language of instruction. In the name of providing equal opportunities, however, the Ukrainian language skills of applicants for any degree course were/are assessed with tests originally compiled for those native Ukrainians who applied for admission to study Ukrainian philology. Those concerned and minority rights groups turned to various authorities such as the Ministry of Education, the President or ombudsmen and made complaints about the following instances of discrimination:

a. Since a uniform matriculation exam in Ukrainian language and literature is a prerequisite for admission to any degree course, it puts students who complete their secondary education in a minority language at a disadvantage. Although they speak Ukrainian as a second language, they still have to meet the same requirements as native speakers of Ukrainian do. It is only natural that the number of Ukrainian language lessons and the curriculum are different in minority schools. What is more, the state has failed to facilitate the education of Ukrainian as no Ukrainian-Hungarian and Hungarian-Ukrainian dictionaries were published until the launch of the new system, and neither curricula nor textbooks take into consideration the special characteristics of minority languages and the fact that Ukrainian is a second language for minority students. Besides, there are problems in human resource terms as well, since no language teachers have been trained for minority schools; therefore Ukrainian has been taught by teachers who have a certain knowledge of the language or, slightly better, are qualified teachers of Russian language and literature. As for qualified teachers of Ukrainian language and literature, they have been trained to convey Ukrainian high culture to native speakers; consequently most of them find it hard to cope with the challenges they have to face in minority schools. Minority students are hardly, if at all, prepared for the questions on Ukrainian literature at the examination. Ukrainian literature as a subject was introduced in minority schools only a few years before the reform. Although there are only one or two lessons per week and students are not even supplied with anthologies of Ukrainian literature, they are expected to write literary essays at the exams. According to admission regulations, students sitting the Ukrainian language and literature exam who perform below the centrally set threshold score, are not entitled to apply for admission at an institution of higher education. In 2008, the first year of the new system, only 40-43 percent of the graduates of Hungarian-language schools passed the Ukrainian exam. Those who failed it could not apply for admission to universities even though they performed well in their special fields. Even those who passed were at a disadvantage compared to native Ukrainians or graduates of Ukrainian-language schools, because no matter how well they performed in the subjects of their choice, owing to their Ukrainian exam results they were still not eligible for state-funded higher education but were only accepted, if at all, to programmes with tuition fees.

b. It was also considered discriminatory that the minister gave permission for the translation of technical subjects into the language of instruction only for two years. This was definitely a measure which was intended to dismantle the minority education system by discouraging parents from enrolling their children in minority schools. Furthermore,

the entire system contradicted current legislation, because it violated minorities' rights to equal opportunities for admission into higher education.

Instead of taking measures guaranteeing equal opportunities, the minister, in response to requests calling for equal opportunities, increased the number of Ukrainian language lessons and attempted to introduce Ukrainian as the uniform language of instruction of technical subjects in his Ministerial Order no. 461 issued on 26 May 2008. He announced a programme designed to improve Ukrainian language teaching for the years 2008-2011. It prescribed a model of redirection for minority education. In the first step, some subjects were planned to be taught in two languages, and later only in Ukrainian. In the action plan, the number of Ukrainian language and literature lessons was increased by 2 per week in years 10 and 11, which is not enough to overcome minority students' disadvantage compared to their Ukrainian peers if exam requirements are adjusted to native speakers' knowledge. In year 10, the history of Ukraine was also to have been taught in Ukrainian during the extra lessons that would originally have been reserved for optional classes. In year 11, the same subject was to have been taught in Ukrainian alone. For year 11, the last year of secondary education, a fully bilingual system of instruction was to have been introduced. The order stipulated that from the next academic year on, the matriculation exam was no longer to be taken in minority languages in any of the subjects. The action plan intended to increase the number of Ukrainian lessons in years 2-4 of primary school, which might well have been useful if the facilities, the human resources, and the methodology of Ukrainian language teaching had been changed, and if it had been acknowledged that Ukrainian was not the native language of minority students and if this had been taken into consideration when requirements were set. According to the action plan, the methodological directions were to have been elaborated by 1 July 2008. It was planned that in the next academic year, Ukrainian would be introduced in minority schools as the language of instruction for the following subjects: the history and geography of Ukraine, P.E., crafts, and a subject called "the defence of our fatherland". Further planned measures included publishing bilingual technical dictionaries, small group teaching at Ukrainian language and literature lessons, increasing Ukrainian teachers' language benefits, retraining subject teachers to be able to teach in Ukrainian, and developing libraries and textbooks. The Ministerial Order made reference to prevailing legislation such as the Law on Languages in Ukraine and the Law on Education as well as the European Charter for Regional or Minority Languages and various treaties on the protection of ethnic minorities, but it was done selectively, in a peculiar interpretation. Moreover, no regulations were issued dealing with the preservation, development, or support of minority languages at that time.

After the 2010 elections, the new Minister of Education and Science Dmytro Tabachnyk of the Russophile Party of Regions amended the above order. The system of admission to higher education in 2010/2011 was the following:

− The Ukrainian language continued to be compulsory. Admission requirements in all majors were still adjusted to the knowledge of those who applied for the Ukrainian language and literature degree programme.

− As a concession, it was introduced that if a candidate scored 170 points in their chosen field of study, they were allowed to apply for admission even if they did not reach the threshold score (124 points) in Ukrainian.

− Applicants were given the right to use the results of their tests taken in examination centres for further attempts at admission for three years.

− Higher education institutions were given the right to organise their own internal en-

trance exams for those who graduated from secondary school before 2007 and wanted to enrol in correspondence degree courses.
– Russian – but no other minority language – was included as an optional language of entrance exams.

In the 2012 admission regulation issued by the Ministry of Education headed by Tabachnyk, Ukrainian was still a compulsory exam subject for all majors, but there were some new elements incorporated into the system:
– Universities were to admit applicants on the basis of the results of the matriculation exams they had taken in independent examination centres in three subjects prescribed by the ministry (Ukrainian language and literature, the subject related to their chosen field of study, and one of the two subjects determined by the ministry).
– For admission, applicants had to achieve 140 points out of 200 in their chosen field of study and at least 124 points in the other two subjects, or if they achieved 170 points in their chosen field of study, they were admitted even if they had less than 124 points in one of the other subjects.
– Exam results were valid for three years for further attempts at admission.
– Institutions had the right to organise internal entrance exams for minority language majors, including Hungarian, as a third exam subject.
– The requirements of the compulsory exam subjects prescribed by the ministry contained the following anomalies: the same level of mathematics was required for primary teacher education as for subject teacher education or degree programmes in engineering. The same level of biology was required for preschool teacher education as for subject teacher education or medical studies. Besides, as has been mentioned, all applicants were expected to meet the same requirements in the Ukrainian language as those who chose Ukrainian philology as their major.

After the events of 2013[1], the founder and rector of the country's most renowned private university, Serhiy Kvit became Minister of Education, introduced a new bill on higher education in parliament in 2014 and had it passed in record time. There were further changes introduced in the admission procedure as of 2015:
– The results of exams taken in independent examination centres are, once again, only valid for the current year.
– Every secondary school graduate has to take their Ukrainian language and literature matriculation exam in independent examination centres, and their results will be entered in their matriculation certificates.
– A two-level (basic and advanced) matriculation exam was introduced in Ukrainian and mathematics.
– Those students who failed the basic Ukrainian exam are not allowed to take any further examinations in independent examination centres, which would be necessary for admission into higher education.
This measure has centralised the matriculation exam but has separated it from the university admission procedure at the same time: while only the results of exam questions which concern the Ukrainian language are entered in the matriculation certificate, the results

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1 In December 2013 there were a series of mass demonstrations with a death toll of several dozens in Maidan (Independence) Square in the centre of Kiev against the then president of Ukraine Viktor Yanukovich because of the country's economic depression, overwhelming corruption, and the ever widening divide between certain social groups (especially between the economic – which was mostly also the political – elite and the rest of society).

of questions regarding literature are also taken into account during the admission procedure. A matriculation certificate is required to enter higher education. Those who apply to Ukrainian higher education institutions need a certificate of their results in the basic or advanced exam in Ukrainian language and literature, provided that they have reached the minimum score. The certificate is, however, only valid for one year.

The external and independent testing of Ukrainian language and literature is realised on two levels: students can choose whether they wish to take their matriculation exam on a basic or advanced level. The admission regulations of universities determine whether students are required to take a basic or advanced-level exam for each degree programme, and what percentage of the maximum score is provided by the results of the exam. Most Ukrainian higher education institutions require a minimum score of 100, which is also the threshold of the basic level.

During this academic year, the evaluation of the independent tests has been changed as well, based on a mixture of evaluation systems used in Europe. A minimum score (a so-called threshold) has been introduced for applicants, which they need to achieve in order to apply for higher education. This year, the basic test consisted of 58 tasks, which could be rewarded with a maximum of 104 points. The advanced test consisted of 74 tasks, and 136 points could be achieved in total. The points achieved in the tests were then converted to a scale from 100 to 200. With these results, one could participate in the application process to Ukrainian higher education institutions.

The working group which evaluates the external and independent testing also determines the minimum score for application after the exam, considering the results of the tests. This year, the threshold was 22 points in Ukrainian language and literature, which means that these 22 points were converted into 100 points, which is necessary for application to a higher education institution, and every additional point increased this score. All applicants got 5 extra points, as the working group decided that questions 29-33 had been ambiguous, thus 17 points were enough to reach the threshold of the basic exam.

Based on the results of the independent testing in Ukrainian language and literature, points achieved in the language part of the test and converted to a scale from 1 to 12 compose the matriculation exam in Ukrainian at the same time. There is no threshold for the matriculation exam. Thus, results in Ukrainian influence the mean score of the matriculation exam, the percentage of which in the total score of application is determined by higher education institutions. For instance, the admission committee of Ferenc Rákóczi II Transcarpathian Institute decided on the calculation of points in the following way: 20% of the total score is based on the basic-level results in Ukrainian achieved at an independent examination centre, 50% on the exam results in technical subjects, 20% on the third subject determined by the institution, and 10% on the mean score of the matriculation exam.

In 2015, 275,000 people took the exam in Ukrainian language and literature, but only 14 of them achieved the maximum score on the basic level. Nobody could achieve the maximum score on the advanced level. The maximum score of 200 points was given to 142 students. This was due to the fact that if one achieved as much as 102 points out of the maximum 104 in the basic level exam, this was converted into 200 points. Similarly, 200 points were granted in the advanced level exam if one achieved 132 points out of the maximum 136. Of the 142 students who received 200 points, 127 took the basic and 15 the advanced exam. Of all the 275,000 participants, 23,125 students failed.

Several students broke the rules during the exam, thus their work has not been evalu-

ated. However, the Ministry of Education has allowed these students to take an extraordinary exam in Ukrainian at their schools so that they may get a matriculation certificate. This exam is expected to take place in August, after the application procedure.

The numbers of those who have achieved the threshold of application, calculated by school, must be published on the official website by the end of June.

Based on the data voluntarily provided by schools in 2015, Hungarian-language talent development institutions, lyceums, and grammar schools in Subcarpathia estimated the number of those who speak Ukrainian (on a level which allows them to pursue their studies in higher education) at 70%, with other secondary schools giving an estimate of 30%. Provided that they pass the exams in technical subjects and reach the threshold, 342 of the 904 students who have graduated from a Hungarian-language school can apply to Ukrainian higher education institutions.

The admission system is also centralised with respect to the subjects which are taken into consideration. The ministry regulates which two subjects institutions can take into account, alongside Ukrainian, which is compulsory. If one has not reached the threshold in the Ukrainian language and literature exam in the independent examination centre, one cannot apply, whatever one wishes to study. From 2015 on, one cannot even take exams in other subjects with a failed exam in Ukrainian. The exam requirements in Ukrainian are uniform; everyone has to take the same test as Ukrainians, graduates of Ukrainian-language secondary schools, and those who would like to study Ukrainian as a major at university. Therefore the primary requirement of the centralised admission selection is knowledge of Ukrainian, which is followed by skills and knowledge in a particular subject. Higher education institutions cannot organise exams themselves; instead, they rank applicants according to certificates issued by independent examination centres. The order of applicants is public during and after the process. Applications, that is, the copies of exam certificates issued by independent examination centres, can be submitted to three institutions and five degree programmes. After one's admission, one is required to hand in the original certificates at the institution. The order of applicants can be followed on the official website run by the ministry. There are five days available for enrolment. If an applicant, after having been granted admission, enrols at an institution, and the institution confirms this, the central system deletes his or her name from the other orders of applicants, which causes other applicants to move one position higher.

Alongside Ukrainian, the same level of biology is required for preschool teacher education as for medical studies; and the same level of mathematics is required for primary teacher education as for degree programmes in engineering or theoretical mathematics. Hungarian language cannot be an exam subject in independent examination centres, thus institutions cannot take it into account during the admission process. After a series of efforts, institutions which offer a degree programme in Hungarian have been permitted to organise an internal entrance exam for applicants. Previously, institutions had no information as to whether applicants even spoke Hungarian, as it was only required for applicants to submit their certificate in Ukrainian, a foreign language, and the history of Ukraine. This does not affect other degree programmes. Thus, as all applications with valid certificates must be accepted, the professors of Ferenc Rákóczi II Transcarpathian Institute, which is funded by the Hungarian government and trains teachers for Hungarian-language preschools and primary schools in Subcarpathia, never know until the beginning of the academic year how well applicants speak Hungarian, if at all.

LAUNCHING DEGREE PROGRAMMES

Degree programmes are also launched in a strict system. Whenever a degree programme is launched, a set of self-evaluation documents demonstrating that material, personnel, and methodological requirements have been met, must be prepared and submitted to the ministry. Nevertheless, some of the regulations for the requirements may seem absurd from a European point of view. For instance, a floor area of 1.5-2 square meters per student is to be provided at the institution as an area which can be used for education; moreover, institutions need to prove with property records that they actually own as much space as the number of students requires. The number of computers per student is also regulated, and 6 square meters must be provided per computer. Furthermore, two types of textbooks approved by the ministry must be provided in every subject (one volume each per five students). The curriculum, lectures, i.e. college notes, methodological projects which help students work in an independent way, guidelines, description of the system of field practices and its requirements, and the system of evaluation need to be methodologically prepared for each subject of every semester of the programme. The questions of the end-of-module exams, i.e., subject databases, must be formulated beforehand as well. As for personnel requirements which guarantee the quality of education, regulations are very strict. Lectures can only be given by full-time teachers with an academic title. One is considered a full-time employee if one's official documents containing one's occupational history are held at the institution, a point which is regularly checked. At least 10% of the lectures have to be given by doctors of the National Academy of Sciences of Ukraine, while seminars can be conducted by those who have a master's degree. Academic doctors, candidates of sciences, and those with the rank of associate professor or professor are considered certified lecturers if they obtained their qualifications in Ukraine. PhD degrees acquired abroad are not regarded as valid qualifications unless they are accredited in Ukraine. During the accreditation, the procedure of earning the academic title must be repeated, that is, a dissertation defence is held before an appointed committee; its members then decide by secret ballot whether the person with a PhD degree can be granted its Ukrainian equivalent, the degree of candidate of sciences. Any rental property necessary for education (i.e. laboratory, model farm, sports hall) is only considered part of the floor area officially if there exists a long-term contract, i.e. for at least two academic years, between the owner and the tenants, officially countersigned by a civil-law notary. This is problematic because owners are not likely to sign a long-term contract in an atmosphere of political and economic uncertainty. The number of student dormitory spaces, the stock of books at the library, subscription to scientific journals, equipment, and laboratories are normatively regulated. It is not clear, however, how many institutions could continue to operate if ongoing degree programmes were strictly supervised based on these regulations. Politicians specialised in minority education fear that minority higher education institutions might be at a disproportionate disadvantage during the execution of these regulations.

If the submitted documents are found to be formally and normatively appropriate, a selected ministry official, by a Ministerial Order, sends a visiting committee to the institution. The committee must consist of at least two people who do not know one another. The committee members, who are also doctors of the National Academy of Sciences of Ukraine in most cases, are selected from one Eastern and one Western region. The task of the com-

mittee is to personally investigate whether the self-evaluation is realistic and to summarise this in a long report. The data regarding the personnel, the methodological background, and technical equipment are always inspected. If the report is positive, the documents are transferred to a competent subcommittee of the National Accreditation Committee, then both the subcommittee and the Accreditation Committee decide whether the degree programme can be launched. The permission to launch a degree programme is valid for one educational cycle (i.e. 4 years for bachelor's and 2 years for master's programmes), at the end of which the accreditation procedure must be initiated. This is very similar to the licensing procedure described above, but in this case final year students' knowledge is also tested. The visiting committee makes students take tests, and the results are then compared with actual tests which were taken previously. The accreditation is valid for five years after which it must be reinitiated.

When a degree programme is launched, the institution prepares the concepts of the course as well as its description of education, qualification, and evaluation, and has these approved. The curricula is based on subject standards and norms, which are regulated on a national level, therefore they can only be altered very slightly. Institutions can list some subjects as optional. This is going to change, however, according to the new Law on Education: from 2016 on, the number of mandatory subjects will be decreased, and students will be able to choose from subjects available at the institution themselves.

According to the regulations, multiple groups of subjects need to be offered. These include, 1) subjects which develop general scientific knowledge, including subjects in humanities, social sciences, economics, mathematics, and natural sciences; 2), professional and technical training, and 3), subjects chosen by the institution and the students.

For instance, the following subjects are taught in every degree programme: philosophy, sociology, politics, the history of Ukraine, Ukrainian and universal cultural history, Ukrainian language, Ukrainian official language, civil defence, informatics, hygiene, and ecology.

EDUCATIONAL STRUCTURE

The bachelor's course lasts four years (eight semesters). This is due to the fact that primary and secondary education last 11 years, and several general subjects were transferred into higher education. According to the strategy planned between 2015 and 2025, 12-year-long primary and secondary education will be restored in Ukraine, after which it will only take 3 years (6 semesters) to obtain a bachelor's degree in accordance with European norms. The two-semester "magister" course, which is equivalent to a master's course, will be adjusted to international norms and become four semesters long. The two-semester "specialist" training, which offered a complete university degree, will be discontinued. Nevertheless, the "junior specialist" or, from 2016 on, "junior bachelor" technical course, which is based on primary education, will be still offered. This course is preceded by 9 years of primary education and is 1.5-3 years longer than secondary education. As an output, students are granted a matriculation certificate as well as a tertiary vocational diploma, which allows them to continue their studies in the second year of a bachelor's degree programme through credit transfer.

A semester consists of 18 weeks of term-time and an examination period. According to the new Law on Education, the semesters will be 15 weeks long from 2016, the number of subjects will be decreased, and more time will be provided for students' preparation and exams. Subjects will be categorised into a credit system. A one-credit subject will be taught in two weekly lectures during one semester. Due to integration, every subject will bear a credit value of at least 3 from 2016. An order has regulated that a student should not have more than 8 compulsory subjects per semester. Several facultative courses can be chosen in the institutions as well. Each compulsory subject must be completed in the appropriate semester. Students who cannot finish the second semester will automatically drop out, but they can reapply to the institution. Those who failed their exams in the third or fourth semester cease to be students legally, but in the next semester, they can initiate the restoration of their student status. If it is indeed restored, they can continue their studies from the semester which they failed in, and are only allowed to move on to the next semester if they pass all their exams.

Field practices and internship programmes form a vital part of the courses. During field practices, students can acquire skills which are necessary for the profession but cannot be taught in class. For example, geography students have economic and nature-exploration field practices. During the former, they visit factories, while during the latter, they take part in a ten-day trip to get to know the natural characteristics of their region, country, and the Carpathian BasIn: Teacher education students visit classes at several schools for one day each, then practice teaching themselves in an appointed institution for six weeks in the last semester.

P.E. classes bear no credit value. Two such classes per week are obligatory in semesters 1-4, while two further classes can be substituted by activity in sports groups, which must be documented. Language courses have been compulsory up until the present. Ukrainian vernacular, official, and professional language has been taught during 7 semesters, foreign languages during 4 semesters. The new law does not prescribe compulsory language courses, but it sets language certificates as a requirement for degrees, the system for which has yet to be properly introduced. From the second year, students have to write a "year thesis", which must be defended in the faculty. In the seventh semester a "year thesis" must still be written, then at the end of the eighth semester, students take their final exams in their field of study and defend their dissertation. Dissertations are generally based on previous "year theses" and have to be 40 pages long. Teacher education students have a six-week pedagogical practice at schools in the last semester.

SUMMARY

It seems that the difficult entrance to higher education remains one of the greatest problems of Hungarian-language education in Subcarpathia. Under the aegis of the Bologna Process, the entrance to higher education is regulated to establish equal opportunities, which paradoxically causes the exclusion of minorities from the system. For instance, entrance exams must be taken in a centralised way, in examination centres. The exam subjects are determined by the ministry; the university receives only a certificate of the results, based on which applicants are ranked. To enter a degree programme, one must sit for an exam in Ukrainian language and literature. Furthermore, the same level of biol-

ogy is required for preschool teacher education as for medical studies. Native language competence is required to perform well in the exam in Ukrainian, which was originally designed as the Ukrainian philology entrance exam. If an applicant does not reach the threshold in Ukrainian, which is determined by a committee each year, he or she will not be granted admission to any degree programme. One cannot take an entrance exam in minority languages (e.g. Hungarian, Romanian, Slovak), except in Russian, which also means that institutions cannot set a knowledge of minority languages as a requirement. Thus, higher education institutions which offer Hungarian-language degree programmes have no information as to whether applicants speak Hungarian.

It is extremely important that under these circumstances the Ferenc Rákóczi II Transcarpathian Institute should exist and form an important element in higher education. One of the most effective convergence programmes in higher education deals with the funding, the preservation of equipment and property of this particular institution, which is vital for its continuous and stable operation. This effectiveness is explained by the fact that it is mostly Hungarians who apply to the institution, thus the competition is more equal. The disadvantage experienced by Hungarians due to the Ukrainian exam is somewhat decreased in the admission process, as few students apply who have attended Ukrainian-language schools. The existence of Ferenc Rákóczi II Transcarpathian Institute contributed to the establishment of the Faculty of Humanities and Natural Sciences with the Hungarian Language of Teaching of Uzhgorod National University, which had been initiated in the 1970s but was not recognised by the state until an alternative appeared. The Transcarpathian Institute primarily offers teacher education with Ukrainian accreditation. It is more or less sufficiently funded by the Hungarian government. However, the institution, which does not receive any funding from the Ukrainian government, is not able to offer the number of degree programmes demanded, as would be necessary for the Hungarian community. It would be worthwhile to allocate places for Hungarian students in degree programmes which are only offered in Ukrainian at public institutions (i.e. for the education of lawyers, doctors, dentists, or veterinarians; or the international relations programme), which would be filled through internal competition. For example, scholarships could be awarded to students who study to enter important professions which are in demand among the Hungarian minority. To provide equal opportunities, more programmes could be launched partially or completely in the Hungarian language at public institutions, especially in tertiary-level vocational training, which helps students prepare for university. It is important, however, to avoid parallel and superfluous degree programmes, i.e., Hungarian-language programmes only need to be launched in fields in which there is no other accredited Hungarian-language programme. Furthermore, the Ukrainian government should fund these programmes, as they train professionals with Ukrainian citizenship who will most likely pay taxes in Ukraine. At the same time, the Hungarian government could grant funds necessary for the establishment of specialised libraries and the organisation of field practices, partial training courses, and continuing education in a professional language. When it comes to launching a new degree programme, meeting the demands of the market is a definite preference.

The Law on Higher Education, passed in 2014, declares European higher education values, promises institutional autonomy and liberty, prescribes structural and curricular changes, and emphasises students' and teachers' mobility. The validity of this legislation, as in most cases in Ukraine, will depend on its implementation and execution. Is it pos-

sible to adjust other pieces of legislation and Ministerial Orders to this law? Can those who are affected understand and support the changes? Could the reforms be implemented by officials socialised in the Soviet era, who have been stuck in the same work environment for decades?

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THE SITUATION AND ISSUES OF MOTHER-TONGUE VOCATIONAL TRAINING IN A BILINGUAL EDUCATIONAL SYSTEM: THE RELATIONSHIPS BETWEEN MOTHER TONGUE - THE LANGUAGE OF INSTRUCTION AND THE OFFICIAL LANGUAGE OF THE STATE

Rita Pletl

ABSTRACT

My study examines the situation of mother tongue vocational training in a bilingual educational system regarding the conditions of learning and teaching, particularly as apply to linguistic issues in education. I aim to outline the way in which the relationship between the language of instruction, the mother tongue and the official language of the state is shaped in the context of the expectations of the minority community (the possibility of learning in the mother tongue) and the objective conditions of Romanian public education.

The topic will be discussed in the following steps: 1. I briefly present an empirical study exploring the state of Hungarian-language vocational education in Romania. 2. I outline the situation of Hungarian-language secondary school education by presenting the possibilities offered by the law (the regulations governing education) as opposed to the actual situation revealed by the empirical research (regarding the institutional network). 3. Based on the results of the research I outline the characteristics of mother tongue secondary education from the point of view of the participants in the educational process (students and teachers). 4. In the conclusion I summarize the ideas that would reassuringly settle the issues of mother tongue secondary education for the linguistic minorities regarding the relationship between mother tongue - the language of instruction - and the official language of the state.

THE PRESENTATION OF THE EMPIRICAL RESEARCH[1]

In outlining the theoretical basis of the research we consider every aspect of the scholarly literature (EU education - guidelines regarding vocational training; Hungarian language vocational training). (a) In compiling the topics for the research there is a need to examine the general guidelines set by the European Centre for the Development of Vocational Training; the documents regarding vocational training in Romania (laws, government regulations); the issues arising from the characteristics of bilingual education (Fóris-Ferenczi- Péntek 2011; Kontra 2005). (b) It is useful to utilize the experience of the research conducted on the situation of vocational training in Hungary (Nahalka, Vass 2009;). (c) Analyses, summaries and studies regarding the situation of Hungarian-language vocational education in Romania exist in manuscript form.

The research conducted in the academic year 2013/2014 is empirical in nature, coverinf the entire territory of Romania and has diagnostic purposes. Its focus: the situation of Hungarian mother tongue vocational training in Romania regarding the conditions of learning and teaching. This is a niche research, as recently there has been no comprehensive study on Hungarian-language vocational training in Romania.

In formulating the research plan we set out the following objectives: (a.) to explore and to present the situation of Hungarian-language secondary vocational training in Romania; (b.) to assess the skills of first year students of technology who had applied to the teacher training programme in using various multimedia tools and to examine their views regarding teaching, the teaching vocation as well as their expectations about teacher training. (c.) to determine correlations between the learning environments of the students of vocational secondary schools and their expectations as well as between the ideas of practicing vocational teachers and those of students enrolled in teacher training programs regarding teaching.

The long-term goal of the research is to create a link between vocational secondary schools and higher education programmes (teacher training).

The planned sample of the study is representative and stratified. The representative character of the sample was ensured by the national coverage (covering the network of Hungarian-language vocational secondary schools) and the regional proportions, while the stratified nature was ensured by choosing according to counties, majors and specializations. Compiling the list of the schools was made difficult by the deficiencies (Hungarian Teacher's Association of Romania, Democratic Alliance of Hungarians in Romania - out of date) and inaccuracies (Ministry of Education) of the different databases.

According to the topic and objectives of the research three groups of target populations were outlined: graduate students of vocational secondary schools; teachers working in Hungarian-language vocational schools; first year engineering students enrolled in the teacher-training program. In designing the content framework for the measurement tools, the following aspects were taken into consideration: the questions are relevant from the point of view of the topic of the measurement; the questions cover the factors influencing the situation of vocational training (regarding the relationship between teacher and student, between teaching and learning); the measurement tools comply with the requirements of authenticity (social and virtual).

The secondary school questionnaires focused on the following topics: what are the elementary school results and social classes of the students enrolled in vocational training; what are their visions regarding their careers; what is the language of the teaching of special subjects and of practical training; what are the issues of the language of instruction, of understanding and of learning the material; what is the level of satisfaction with the knowledge they can learn in vocational schools, as well as with the methods applied. The questionnaires of the engineering students enrolled in the teacher-training program covered the following areas: their knowledge of information and communication technologies; their proficiency in using web 1.0 and web 2.0 applications; the benefits of using educational software in schools; previous school experience; expectations regarding teacher training; the role of the mother-tongue in the transfer of knowledge. The teacher questionnaire focused on the following areas: the teaching burdens of vocational teachers, the infrastructure of the schools, teaching and didactic aids; the linguistic issues of training (in which language the teacher finished his/her university studies: mother tongue

or the official language of the state, the level of proficiency in Romanian and Hungarian special languages, the linguistic problems of the transfer of knowledge); the factors impeding the effectiveness of teaching. The interview covered the following topics: the chances of mother-tongue education, suggestions for the implementation of an effective mother-tongue education, the possibilities of establishing partnerships with the technical teacher training programs of Hungarian-language universities.

Data collection unfolded in three stages. In the first stage, the questionnaires were sent to the highschools in separate envelopes for the different specializations, departments and classes, as well as for the guidelines. The filled-out questionnaires were collected. The second phase consisted of the query of the students enrolled in teacher training programs. In the third stage, the teachers working in vocational secondary schools were interviewed.

The creation of the databases: we coded the received questionnaires based on regions, counties and the subjects of the survey (high school students, teachers, university students in the teacher training program). The data were introduced into the computer with the help of the students enrolled in the teacher training program.

The data was processed using the following methods: statistical calculations, content analysis in the case of the open-ended questions of the questionnaires and of the interviews, analysis of the frequency of key words.

THE SITUATION OF HUNGARIAN-LANGUAGE SECONDARY VOCATIONAL TRAINING IN ROMANIA IN LIGHT OF THE DOCUMENTS

The characteristics of the Hungarian minority education in Romania must be approached within the context of the Romanian educational system. Its situation and possibilities are determined by the legal framework that ensures its existence and operation and serves as its control, designating its place in the whole of the Romanian educational system. According to the official standpoint, Hungarian minority education is one form of minority education in Romania. The provisions of the law of national education ensure three institutional forms for the national minorities: mother-tongue education, partial mother-tongue education (in addition to the mother tongue, vocational subjects can be taught in the mother tongue), as well as Romanian-language training, in which the mother tongue can be taught as a separate subject (Murvai 2008, 8).

Within the system of Romanian public education, vocational training is introduced in the intermediate level: classes 9 and 10 represent the lower stage, while classes 11 and 12 the upper stage, followed by a graduation exam. In the case of vocational schools the first two years represent the lower stage, which can be followed by an additional year of study, which creates the possibility to move to the upper stage.

Over the past 25 years, there have been several factors that prevented the expansion of Hungarian-language vocational training in Romania. Together, they show that choosing the language of instruction, (mother tongue and/or the language of the state) has always been a key factor of minority education, a finding which also sheds a light on the fact that in the interpretation of the status of minority education within the system, there is a conflict between the majority and minority views. The majority interprets minority education as an organic element of the strictly centralized educational system, to which system-wide regulations also apply. Diametrically opposed to this view is the position of the linguistic

minority, which is that minority education should be understood as a sub-system ensuring the operation of a school-system based on self-organization, and which makes the differentiated treatment of the mainly cultural and linguistic issues arising from the minority situation possible.

The practice stemming from the view of the majority is that they restrict the use of the mother tongue with lower level legal norms and regulations, of course, to the benefit of the minorities whom they want to protect from the difficulties of integration into the majority society. The provisions regulating the use of the mother tongue in vocational training show that in the attitudes towards linguistic minorities, the majority enforces cultural linguicism, while regarding the teaching of minority mother tongues, institutional linguicism.1 For example, government resolution no. 1990/521 banned Hungarian language vocational training in Romania. The 1995 law of national education2 allowed the possibility to choose Hungarian language teaching in vocational education, but required the vocational subjects to be taught in Romanian. Based on the 1999 amendments to the law, there is a possibility to teach vocational subjects in the mother tongue with the obligation that the students must acquire the Romanian terminology, as well. Decree no. 2014/3136 on the reorganization of vocational schools allowed minority languages to be used as languages of instruction.[2]

From the point of view of the language of instruction there are two important aspects to highlight. The Romanian Parliament ratified the European Charter for Regional or Minority Languages (Strasbourg 1992.) in 2007, the Preamble of which states that the protection of the historical regional or minority languages of Europe contributes to the preservation and development of the cultural wealth and traditions of Europe, and also stresses that cultural interaction and multilingualism is a value that needs to be preserved by taking protective measures and incentives. On this basis, paragraph 11 of Article 45 of the Law of National Education (Law 1/2011)[3] regulating the education of national minorities consolidates the constitutionally guaranteed right of the citizens belonging to national minorities to learn in their mother tongue and to be taught in their mother tongue (the Constitution of Romania, article 43, paragraph 3). By law, if the language of instruction is the mother tongue of a national minority, the teachers working in that particular institution must know the language of instruction at an appropriate level.

Based on data from official documents on the situation of Romanian vocational education (the database of the Ministry of Education, the Hungarian public education cadastre of Romania) the following can be outlined:

From the point of view of the level of development of Hungarian language secondary vocational education, the differences between the regions are significant. The network of Hungarian language vocational secondary schools is the most developed in Hungarian majority regions, as 40 such institutions function in the counties of the region, with the following distribution: Hargita (Harghita) county: 18, Kovászna (Covasna) county 8, Maros (Mureș) county 14 educational facilities, that are either independent Hungarian tuition secondary schools or ones with a Hungarian section. In the interethnic region, there are 28 vocational secondary schools with Hungarian sections: Bihar (Bihor) county 9, Kolozs (Cluj) county 4, Szatmár (Satu Mare) county 10, Szilágy (Sălaj) county 5 institutions. The interethnic region is thus characterized by significant differences between the coun-

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2 Chapter I., Article 3., paragraph 3.
3 Învăţământul pentru persoanele aparţinând minorităţilor naţionale (Law no. 282/2007 Education of national minorities)

ties, there are twice as many Hungarian sections in Bihar (Bihor) and Szatmár (Satu Mare) counties as in Kolozs (Cluj) county (although the demand and the number of candidates is sufficient1). In the diaspora region, there is a total of 8 vocational secondary schools that have a Hungarian section: Arad county 1, Beszterce-Naszód (Bistriţa-Năsăud) county 1, Brassó (Braşov) county 1, Hunyad (Hunedoara) county 1, Szeben (Sibiu) county 1, Temes (Timiş) county 1. This region is characterized by the fact that there is at most one town in the county with a Hungarian section (except for Arad and Brassó county, where there are 3 in each), and there are counties where there is no mother tongue secondary vocational training at all (Máramaros - Maramureş, Fehér-Alba counties). There are cases when, according to the ministry's registry, there is Hungarian vocational training, while based on the feedback of the institutions, there is none (Beszterce-Naszód).

The regional ratios of the institutional network are the following: majority: 52.63%, the interethnic region: 36.84%, the diaspora: 10.52% and this is broadly consistent with the regional ratios of the Hungarian school system in Romania (elementary, primary and secondary): 54%, 32%, 10-12% [4].

The Hungarian language educational offer is limited and is not consistent with the regional labour market needs. According to official data it is questionable how much the offer meets the needs of society and labour market demand (e.g., the medical, veterinary specializations are non-existent, while the economic, agricultural and forestry specializations barely exist).

Vocational education institutions with Hungarian sections do not have Hungarian mother tongue staff proportional to the number of Hungarian pupils (the data of the Romanian public education cadastre).

THE SITUATION OF HUNGARIAN-LANGUAGE SECONDARY VOCATIONAL TRAINING FROM THE POINT OF VIEW OF THE ACTORS

The data used to outline the characteristics of Hungarian secondary vocational training, as perceived and assessed by the actors in the process of learning and teaching (the students and their teachers) result from a representative sample. Not only the planned sample, but the empirical study sample also reflects the national situation. This is supported by the participation rate of the educational institutions involved in the survey. In the case of the majority region this is 65% (26 of the 40 vocational schools took part in the study), 43% in the case of the interethnic region (12 out of 28 institutions), while 50% in the case of the diaspora region (4 out of 8 institutions). Distribution by county is the following: majority: Hargita 61%, Kovászna 63%, Maros 71%; interethnic region: Bihar 22%, Kolozs 75%, Szatmár 40%, Szilágy 60%; diaspora: Arad 0%, Beszterce-Naszód 0 %, Brassó 67%, Hunyad 100%, Szeben 0%, Temes 100%.

 The database includes the data of the 1892 questionnaires filled in by vocational secondary school students.

The regional distribution of the teacher sample reflects the fact that the number of Hungarian mother tongue vocational teachers is not proportional to the number of students: diaspora: 7 teachers; interethnic region: 11; majority: 81 teachers. The educational institutions with Hungarian sections, where Romanian mother tongue teachers teach

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4 The data are the results of two national coverage surveys (Pletl 2011, 14.; Pletl 2012, 16.)

Hungarian children as well, sent the teacher questionnaires back blank. Thus, we have only indirect data (the answers of the students: they learn vocational subjects in Romanian, they have their practices in this language, etc.) on the violation of the students' rights to learn in their mother tongue. The objective reasons for the situation are the following: the shortage of Hungarian speaking specialists, on the one hand; on the other, the requirement according to which minority language schools need to employ vocational teachers who speak the language of instruction is not met.

The sample of the engineering students enrolled in the teacher training program: 69 university students. The sample of the engineering students enrolled in the teacher training program: 69 university students. Based on the results of the vocational secondary school students, the following picture can be made as concerns Hungarian-language vocational education. According to 63% of the vocational secondary school students, the offer of Hungarian vocational secondary training is adequate; 28% thinks that the offer is scarce, while according to 9% there is only Romanian language training in the field of the popular and more prestigious professions that provide good employment opportunities. However some questions arise in connection with the proportion of the students' satisfaction with the Hungarian language vocational secondary training offer (more than half of the target population) about the students' level of awareness and consciousness, if we examine the other answers to the questions on their profession of choice. When asked whether the specialization they have chosen makes the practice of the profession they would prefer to work in in the future possible, 54% of the students answered with yes, 23% answered with no, while 23% said they did not know. Only 53% of those, who want to work, wish to find a job in their profession, while 47% simply want to find a job.

The demand for mother language training is high: 75% of the students rather choose another specialisation just to be able to learn in their mother tongue, and only 25% would choose Romanian-language education if there were no mother tongue classes in that particular specialization. These ratios correspond to the choice practices of the Hungarian mother tongue students opting for theoretical or vocational secondary training, meaning that they rather choose specialization than language of instruction (Szentes, 2012). This means that in the early stages of career guidance (after finishing the 8th grade of primary school) the choice of specialization in the case of the Hungarian students is closely intertwined with the choice of the language of instruction (mother tongue or the language of the state).

The demand for mother tongue education also determines applying to higher education. 80% of the students reported that they wished to continue their studies in their mother tongue, 11% would undertake Romanian-language instruction, while 9% would choose another language (especially English).

In the practices of solving the dilemma of choice of language of instruction, some regional differences are outlined: the students living in majority regions switch specialization rather than language of instruction, while the ones living in the diaspora switch language of instruction rather than specialization. The reason for this is that the students living in the diaspora region have acquired a functional Romanian language competence in a Romanian dominant environment. In other words, Romanian instruction is not as great a risk for them as in the cases of those students living in the Hungarian majority regions, where learning Romanian is part of the curriculum and a relevant exam is required (that is why they focus on learning literature), but they do not use Romanian to communicate in everyday life.

The mother tongue instruction of the vocational subjects is considered important by the students: 48% believe that they understand the material better if they learn it in their mother tongue, 17% states that it is easier to acquire a profession in their mother tongue, while 7% say that they have more courage to ask questions from the teacher if they do not understand something. 16% of the students sense some disadvantages as well: 9% believe that they have difficulties in acquiring the Romanian special language, 5% believe that they would have difficulties finding a job if they finished their studies in Hungarian.

Regarding the relationship between the language of instruction, the mother tongue and the language of the state, the Hungarian secondary school students of Transylvania present a balanced standpoint, which reflects their attachment to the right to learn in their mother tongue, but also the realization that the condition to succeed in the majority society is to have appropriate language skills in the language of the state.

78% of the secondary vocational school students consider learning the vocational subjects in their mother tongue useful, with the school ensuring the possibility to learn the terms in Romanian, as well. 22% consider it acceptable to learn in Romanian, but they also find it important to learn the terms in Hungarian too, in school, in an organized form.

The results of the research show that more than three quarters of the vocational school students considers the teaching of vocational subjects in Hungarian the most effective. However the desired learning situation cannot be contrasted with the real one, because we do not have reliable data on the extent to which the possibilities provided by the law are fulfilled in the practice of teaching, depending on the local conditions (the mother tongues of the teachers working in the school). When asked about the number of vocational subjects they learn in Hungarian, Romanian or in both languages (only partly in Hungarian), a significant proportion of the respondents did not provide an answer, and a significant part of the answers that were provided could not be evaluated (the number of vocational subjects in the above-mentioned three groups was either higher or lower than the number in the curriculum).

Traineeship, providing a basis of training in professional activities, is also important from the point of view of technical language literacy, which is why it was important to ask about the language used during the traineeship. Based on the answers, the following picture presented itself: in the case of students in the diaspora region, 22% receive practical training in Hungarian, 22% in Romanian, while 56% a bilingual (only partly Hungarian) one. In the interethnic region, these ratios are the following: Hungarian 65%, Romanian 13%, bilingual 22%, while in the Hungarian majority region Hungarian 83%, Romanian 6%, while bilingual 11%. Regarding the language of practical training the regional differences are significant. There is possibility for three times as many students in the interethnic region and for four times as many in the Hungarian majority region to receive practical training in their mother tongue, than in the case of students in the diaspora. The ratios are reversed in the case of receiving practical training in both languages.

In theory, the graduates of Hungarian language vocational secondary schools have the right to be able to take their final technician's exams in their mother tongue. In practice, however, the reinforcement of the right depends on local constraints (the language of instruction of the vocational subjects, whether there is a Hungarian mother tongue specialist on the examination committee). The data of our study reflects the situation that one quarter or more than one quarter of the Hungarian mother tongue vocational secondary school students do not take their final exams in their mother tongue. In the diaspora, 36%

of the students have their exams in Hungarian, while 64% have them in Romanian; the ratios of the interethnic region are the following: 78% in Hungarian, 22% in Romanian, in the majority region 86% in Hungarian, 14% in Romanian. In the case of practical training alone, there are significant differences among regions.

The supply of textbooks on the national level is insufficient: 16% of the students report that they have textbooks, while 84% that they do not have any in their vocational subjects. The distribution of textbooks based on language is also not satisfactory: Hungarian (40%), Romanian (27%), Hungarian in some subjects and Romanian in others (33%).

According to the results of the teachers' questionnaires and interviews, the following picture regarding the situation of Hungarian language vocational training presents itself:

The distribution ratio of the teachers of vocational subjects regarding their university training (80% graduating from different engineering programs, 18% from some kind of science program, while 2% from mathematics) reflects the limited nature of the offer of Hungarian language vocational secondary education (for example the lack of public health and agricultural specializations).

The mother tongue education of vocational subjects is a challenge for Hungarian mother tongue teachers, as well as for the majority (83%) of those who finished their higher education studies in Romanian because the given specialization was available in the official language of the state. Only 17% were able to learn in Hungarian. The educational facilities did not provide any opportunities for the acquisition of the Hungarian special language: 10% of the teachers report that they had the possibility to learn the terminology in a formal learning environment (in a VAT course), while 90% of them write that they acquired the mother tongue special terminology on their own, with the help of books. Those who graduated from a Hungarian-language university had received more substantial institutional support in acquiring the Romanian special language: in the case of 44%, the university provided this opportunity, 9% took part in a VAT course, while 47% had learned the Romanian special language from books.

Based on the answers of the teachers, we can conclude the following: the supply of teaching materials is not sufficient: in the case of textbooks and visual aids, these ratios are the following (yes/no): 65%/35%; 63%/37%. Comparing the data from the teachers' answers with those of the students regarding textbook supply, we find significant differences. The reason for this is probably the fact that the regional ratios are distorted in the teachers' sample (compared to the national situation the interethnic region is 20% underrepresented, while the majority region is 20% overrepresented), and the higher values reflect the more positive situation of the majority region as compared to the other two. The supply of workbooks and worksheets used in the teaching of vocational subjects also falls short of the expectations: 44% of the teachers report that they have such materials, while 56% report that they do not. According to 36% of the teachers, their schools have the computer software necessary for the teaching of vocational subjects, while 64% report that their schools do not. The real situation can be outlined when comparing the data with the use of electronic devices in education: the possibilities to use such tools is limited, according to 34% of the teachers they can use them once a week, 52% reported this to be once a month, while 16% said they have no such possibilities.

The data of the teachers' interviews provide a more detailed picture regarding Hungarian as the language of instruction. When asked what would effectively help the process of teaching, the answers show the intertwining of the language-based and professional expectations and requirements. As one the bases of effective education, they identify the sufficient supply of Hungarian textbooks and teaching aids (workbooks, work sheets). According to the respondents the shortage of textbooks is a factor hindering the acquisition of knowledge, aggravated by the fact that the students lack the sufficient level of cultural knowledge necessary for effective learning. According to 86% of the teachers, another factor hindering education is that the reading comprehension competences of the students are not sufficient. This experience of the teachers is supported by the data of the 2009-2010 national survey: the national score averages and the high rate of those performing below the average signals that, in the final phase of some of the educational stages, a significant number of students does not meet the expected level (Pletl 2012, 113). In 2010, the secondary vocational school students constituting the target population of the present study were in the 8th grade.

According to the teachers, it is a serious problem of Hungarian language vocational training that the Hungarian translations of the Romanian textbooks (a significant proportion of the Hungarian textbooks in use) are inadequate, exactly as regards language[5].

The teachers of vocational secondary schools feel the need to have courses organized for Hungarian mother tongue vocational teachers, from which they expect the enrichment of their special vocabulary, as courses held in the Romanian language are organized regularly.

When asked about the opportunities they see in cooperating with the Hungarian University of Transylvania, they gave prudent, reasonable answers and proposals, based on everyday experience. The answers clearly outline the difficulties of the practicing teachers, the opportunities they see in solving their problems, the way they see the role of the Hungarian language university in supporting mother tongue public education.

The most important among the expectations is the need to support secondary vocational training with Hungarian language professional materials. They also outline the methods of practically implementing this support. The university could contribute to eliminate any shortage of Hungarian language textbooks by producing textbooks, as the engineering faculty members working there have the professional and linguistic skills needed to produce high quality textbooks (excellent both from the professional and the linguistic point of view). This proposal is also important because there are legal regulations (the 2005 order that confirms that textbooks can be written in the language of the minorities) which provide opportunities for implementation.

It is suggested for the university to take part in the organization of training courses for teachers, to help those working in secondary vocational schools to be up-to-date with the results of the latest research and to gain access to Hungarian scientific literature.

Recommendations include that the university should will organize the scientific-professional competitions for students, so it would solve the problem of Hungarian students, who cannot unable to participate in national competitions organized in the Romanian language.

When asked about the role of teaching in the mother tongue, the students enrolled in the teacher training program gave answers based on their experiences as students in

5 On the unresolved issue of Hungarian textbooks: Péntek – Fóris-Ferenczi, 2011, 49-52.

secondary school and their vision on their roles as futurea teachers. The importance of teaching in the mother tongue is discussed from two directions: in terms of teaching and learning. The students assume that learning in their mother tongue is a basic right ("I have the right to"). Its usefulness is proven by a series of arguments: it ensures easier understanding, the complete understanding of the material and efficient learning. They also mention that communication in the mother tongue allows a more direct teacherstudent relationship, the student to be more daring when asking questions, the teacher's explanation to be understood without any language barriers. They also emphasize its importance in the terms of teaching, education in the mother tongue being a basic requirement of qualitative education. In their view, the development of professional skills, the effective transfer of professional knowledge is only possible in the mother tongue. They realize that Hungarian education is more than the mere use of the Hungarian language. They point out that teachers must have adequate language skills, as the students learn the special language through them.

They also examine the role of education in their mother tongue from the perspective of the language community. They believe that it preserves the language, strengthens the community identity and helps the survival of national minorities, also by transmitting national literacy.

Learning the Romanian special language is considered important, as well. Their arguments are the following: Romanian is the official language of the country; it promotes integration into mainstream society; it provides better employment opportunities; it allows a more effective lobbying (administration, job opportunities). It is considered appropriate that learning the Romanian terminology would be implemented in a structured context, so that it has its basis the acquired Hungarian technical vocabulary.

CONCLUSIONS

In Transylvania, the participants of Hungarian education in secondary vocational schools (students, teachers, future teachers) have a clear and firm position regarding the relationship between the language of teaching, the mother tongue and the language of the state. Teaching in the mother tongue, even in the case of specialized subjects, is considered advisable, useful and appropriate. Learning the Romanian terminology in a structured context and a format provided by the school is also considered necessary.

The given answers outline in a statistically measurable way a viewpoint which reflects on two phases. The first one reflects on the minority approach, on how teaching the mother tongue is a priority, and learning the official language as their second language for minority students is an important educational aim. They recommend additive language learning, which allows learning another language (the official language) by maintaining the functional priority of the mother tongue. The second one is against the mainstream approach, because its primary goal is to teach the language of the state, and prioritises the subtractive language learning situation, which strengthens the dominance of state language, narrowing the mother tongue repertoire.

The participants in public education make suggestions on improving education in the Hungarian language (Hungarian textbooks and instructional materials, native Hungarian professionals). Their suggestions rely on the internal resources of the language community, and on the already existing and functioning institutions of higher education. They

draw up legitimate and feasible solutions, consistent with the legal framework.

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HUNGARIAN TEACHER TRAINING IN ROMANIA: THE CASE OF PARTIUM CHRISTIAN UNIVERSITY

Gábor Flóra

ABSTRACT

In the wake of the revolutionary changes of 1989 and throughout the post-communist transition, the reconstruction of the teacher training network aimed at the needs of Hungarian minority community have played an important role in restoring the right and opportunities to mother-tongue education for ethnic Hungarians in Romania. The institutionalization of minority native language education contributed to the development of a culturally pluralistic educational system, based on the equal recognition of various (ethnic, national, confessional) identities. This paper focuses on the case of teacher training at Partium Christian University, a Hungarian private university of public interest in Romania, founded upon the initiative of the Reformed and Roman-Catholic Churches, with the financial support of the Government of Hungary. The issues pertaining to minority teacher higher education are discussed on the basis of research information drawn from a nationwide graduate tracking study conducted in Romania in 2011[1], in addition to the analysis of relevant documents.

Keywords: Teacher training, minority higher education, educational pluralism, minority educational policies, post-communist transition, Partium Christian University.

SOCIO-HISTORICAL CONTEXT

The specific requirements of minority higher education tend to be regarded as marginal and often neglected by national governments and policy making agencies conducting the implementation of current educational reform. Problems pertaining to personal development closely related to identity development have been largely ignored in the Bologna discussions (Bergan 2006). Today, according to information provided by the European University Association, less than 25% of European higher education institutions have introduced specific policies concerning minority ethnic groups or immigrants (Sursock-Smidt 2010, p. 70).

In such circumstances, the institutional policies of the universities designed to respond to minority needs are bound to play an even more crucial role. Minority universities are different from the traditional ones by the fact that they have at the core of their

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1 University Graduates and Labour Market. (UGLM 2011) is a national research conducted by the Romanian National Authority of Public University Financing in partnership with International Centre for Higher Education Research (INCHER) Kassel, and with public and private higher education institutions in Romania. The research tracked the relationship between university studies and the careers of young people. The filling in of the questionnaire ended on 31st March 2011, with 39 293 graduates accessing it. The Partium Christian University sub-sample consisted of148 of its graduates who accessed the questionnaire (72 of which graduated in 2005 and 76 graduated in 2009). The overall response rate of PCU graduates was 40% (51. 06% in the case of the 2005 graduates and 18% in the case of the 2009 graduates).

institutional existence a specific essential ethno-cultural mission: namely, to contribute to the reproduction of the minority intellectual elite and thus to the perpetuation and development of minority national identity and community life.

Romania, a historically multicultural state inhabited by large minority communities, is a particularly relevant example in this respect. Throughout the post-communist transition, higher education in the languages of national minorities, including teacher training as its essential component, has been among the most controversial issues of the Romanian political agenda. This particular importance assigned to the legal and institutional provisions regulating minority higher education can be explained by the specific interplay of ethnic, national and religious identities in a historically determined multicultural context. The Hungarian minority of Romania, which numbers more than 1.5 million people, most of them inhabitants of Transylvania and the Partium, has deep historical roots and a strongly developed sense of national identity connected to these regions. That is why ethnic Hungarians regard the state recognition of a fully-fledged mother-tongue education system - including "their own" higher education institutions - as an essential way in which their identity, perceived as having been particularly endangered by the national homogenisation policies of both interwar and the communist regimes, can be secured.

The events of December 1989 raised the hope that the barriers of nationalism inherited from the past could be overcome. However, first impressions were short lived. Soon after the sudden collapse of communism, nationalism very quickly and effectively filled the emerging vacuum of legitimacy. As the result of the ensuing polarisation of society along ethno-national lines, the articles concerning minorities of the 1991 Constitution and the subsequent legislation were adopted in a restrictive form as far as minority rights are concerned, basically reflecting a consensus of political forces representing the 'state building' majority population, instead of a solution based on a general inter-ethnic political consensus. (Flora 1995, p.)

Irregardless of this unfavourable context for the recognition of an autonomous Hungarian state university, a somewhat larger space for new opportunities seemed to open up in the field of the confessional and/or church constituted private educational sector. As in Transylvania, ethnic and religious belonging overlap to a large extent and religious affiliation acts as a national identity marker, a historical link developed between ethnicity and religion. In virtue of this historical tradition, after 1989, Hungarian minority churches quickly adapted to the new situation and successfully reaffirmed their traditional legitimising function, in close connection with the protection and affirmation of the national identity to which they are primarily linked. Throughout the transition period, Hungarian historical denominations have been instrumental in building up minority institutions of education, culture and social services. (Flora et al 2005)

Among the privileged fields of ecclesiastical intervention, higher education was regarded by Hungarian church leaders of Transylvania and the Partium as having a strategic importance for the preservation and development of national identity. After it became obvious that the political conditions would not allow for the recognition of a Hungarian language state university in the foreseeable future, in 2000 the Hungarian historical denominations decided to provide the legal and institutional basis for the new private universities and faculties with Hungarian as the language of instruction, set up with the financial and political support of the Government of Hungary. As the result of this bold, but politically and institutionally feasible initiative, and perhaps also as an offer of inter-ethnic and in-

terconfessional compromise made under strong internal and external pressures, members of the Romanian national majority political elite ultimately found it acceptable to agree to the establishment of *private* universities with Hungarian as the language of instruction, in contrast to their attitude of categorical refusal manifested towards the idea of a Hungarian *state* university.

Taking into account the above mentioned dimensions and influencing factors, this paper focuses on the case of teacher training opportunities at Partium Christian University, one of the two accredited private higher education institutions in Romania (alongside Sapientia University – Hungarian University of Transylvania), established by the historical churches linked to the Hungarian community. The issues pertaining to minority teacher higher education are discussed on the basis of research information drawn from a nationwide graduate tracking study conducted in Romania in 2011[2] graduate tracking study conducted in Romania in 20112, in addition to the analysis of relevant documents.

INSTITUTIONAL PROFILE

The chronologically first initiative to establish an autonomous private Hungarian higher education insitution in Romania dates back to 1990. In that year, the Reformed Church District of Királyhágómellék decided to set up the Sulyok István Reformed College in Oradea, with the official task of training lay collaborators for the church. Beyond its officially assumed mission, the aim of the founders was to establish a fully fledged university under Christian ecumenic leadership, in the service of the entire Hungarian community. (Belényi et al 2012, 121).

Partium Christian University (further on PCU) was set up as a result of an ecumenical initiative of the Reformed and Roman-Catholic Churches, and came into being as a Hungarian language university. The founder of the university is the Pro Universitate Partium Foundation, the members of which are the representatives of the Reformed- and Roman-Catholic Churches as well as of civil society. PCU is defined by its founders and academic leadership as a community university that is, the university serves the needs of the Hungarian minority: its foundation resulted from the ecumenic initiative of a large number of religious communities pertaining to the Hungarian minority in Romania; its strategic aim is to promote the formation of specialists who can effectively contribute to the strengthening of the Hungarian community in Romania in such domains as culture (humanistic and artistic specializations) education (teacher training) economy and social work (economic and social science specializations); it supports teacher training for the needs of Hungarian minority; and, promotes a sensible social policy regarding students with low-income or disadvantaged background, as well as students with disabilities. (EUA 2014, p. 5)

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2 University Graduates and Labour Market. (UGLM 2011) is a national research conducted by the Romanian National Authority of Public University Financing in partnership with International Centre for Higher Education Research (INCHER) Kassel, and with public and private higher education institutions in Romania. The research tracked the relationship between university studies and the careers of young people. The filling in of the questionnaire ended on 31st March 2011, with 39 293 graduates accessing it. The Partium Christian University sub-sample consisted of the 148 of its graduates who accessed the questionnaire (72 of which graduated in 2005 and 76 graduated in 2009). The overall response rate of PCU graduates was 40% (51–06% in the case of the 2005 graduates and 33,–??? and 18% in the case of the 2009 graduates).

Partium Christian University is the only institution of higher education within the region that has assumed the task of offering professional training in order to educate specialists with a good mastery of both the Hungarian and Romanian languages, and it is the only institution of higher education within the region with this kind of academic offer. The institution aims to combine the opportunity to study in native language in a small-size community type educational settlement with the financial and other advantages deriving from its geographical proximity to the students' home localities. The PCU's mission is academic education and research in the spirit of cultural values specific to the Hungarian community in Romania. The term "Christian University" defines the set of values promoted by the university, which is simultaneously an ecumenical and secular institution. (PCU 2010).

Teacher training at PCU

From the beginning of its institutional existence, Partium Christian University „strived to contribute to teacher training for pre-university education on the notion that the survival of a national minority depends on the possibilities of children being schooled in their mother tongue." (EUA 2014, p.5) In fact, the urgent need to provide Hungarian minority schools (many of them restored or newly established after 1989) with qualified teachers was one of the main reasons behind the decision to set up the Sulyok István Reformed College, the institutional predecessor of PCU. This is why all of the first three degree programs introduced in 1991 Teacher of Religious Education—German Language and Literature, Teacher of Religious Education—Legal Science[3], Teacher of Religious Education—Social Work included at least one teacher training specialisation.

In 1997, a reform initiative of the Romanian government abolished the high school level primary school teacher training institutions and established instead higher education level primary teacher training colleges. In this context, the Sulyok István Reformed College in Oradea/Nagyvárad, in agreement with the Association of Hungarian Teachers in Romania, toook the initiative to establish two new degree programmes: Junior Teacher–Foreign Language Teacher and Junior Teacher–Cantor, with the aim to significantly contribute to the trainining of a new generation of primary school teachers and pre-school level educators within the Partium region.

However, in 2002, a government decree declared a state monopoly on primary school teacher education. As a follow up, the primary school teacher training organized by the Sulyok István Reformed College and its successor institution Partium Christian University was denied accreditation after four years of operation. In spite of this painful loss resulting from restrictive minority educational policies, the founders and academic leaders of the University never abandoned the long term aim to establish the institution as a regional center of teacher training for kindergartens and primary schools. After a new Law of education was adopted in 2011, PCU sized this opportunity and submitted the request for the authorization of the Pedagogy of pre-school and primary education degree programme, which duly received an operating licence and started its activities in 2012.

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3 The Teacher of Religious Education—Legal Science degree programme did not receive operating license and had to be closed after three years of functioning, due to the restrictions imposed on minority language legal higher education. Thus, with the College's assistance, its undergraduates transferred to other institutions.

Beginning from the 2002–2003 year, another measure of reform put private educational institutions – among them PCU - in disadvantage. From that year the right to the teaching position in secondary and high school education could only be obtained through graduating from the so called *teacher training modules* organized by the teacher training institutes in nine public universities of the country. Although the possibility for the establishment of teacher training institutions was open since 2004 also to accredited private universities, PCU obtained this status in 2008 only. In this situation, PCU graduates who wished to access teaching positions needed to enroll in teacher training modules from other universities.

In 2008, following the implementation of the „Bologna system" a new transformation of the teacher training system in Romania occurred: the existing training provided by the teacher training institutions was divided into two levels: the lower level of the teacher training module accessible for BA students and graduates provided a middle and upper primary school (gymnasium) teacher certificate, while the higher level, linked to MA studies, entitled graduates for teaching in post-lyceum education and at universities. (Stark-Zoller 2014, pp. 51). The accreditation of PCU obtained in the same year (in October 2008) allowed by now the institution to propose its first MA programmes and also to initiate the accreditation of its own teacher trainining institute, a process which was succesfully finalized by the Fall of 2010.

Immediately afterwards, however, the 2011 Educational Act removed the previous system, and created instead the teaching MA as legitimate institutional form of teacher training, although the approval of its implementation methodology was delayed. Due to the resulting legal vacuum, the accreditation of the PCU teacher training module could not be enforced until 2012. That year a ministerial decree[4] finally provided the necessary legal basis for the establishment of the *Institute of Psychopedagogy* within the Faculty of Human and Social-Studies and the start of PCU's own programs of secondary and high school teacher training.

Labour market orientation of teacher training graduates

As the only Hungarian language higher educational provider in Romania within the Partium region, PCU defines itself also as a university with a regional role. The regional importance of the university is reflected by the geographical origin of the students and by the fact that the university's educational offer, as well as its cultural and scientific activities, are based on the needs of the country's Northern and Western regions. The distribution of graduates according to the regional location of their first workplace after graduation shows a strong tendency among graduates to return to their home region, which can be regarded as another confirmation of PCU's regional function. Most graduates originate and have found their first job in Bihor County, where the university is located (72% as compared to 58% who originate from this county).

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4 Education Minister's Order no.. 5745 of 13. 09. 2012, with subsequent changes and addenda regarding the approval of the program for psychopedagogical training with a view to certification for a didactic profession through Department of Psychology and Pedagogy.

Table 1. Current residence of graduates (%).

	H	T	S	Ec	A	Total
County of residence [5]						
Arad	0	0	0	6	0	2
Bihor	67	0	79	69	50	67
Cluj	4	0	0	3	0	2
Harghita	11	0	14	3	10	8
Hunedoara	4	0	0	0	0	1
Maramures	0	0	0	0	10	1
Mures	4	0	0	3	10	3
Salaj	4	0	0	8	0	5
Satu Mare	7	100	7	8	20	10
Total	100	100	100	100	100	100
Total answers	27	1	14	36	10	88

Source: PCU 2011 (translated by the author)

The results of the graduate tracking study conducted in 2011 reveal that around one fifth of PCU graduates are employed in the field of education. The highest proportion of teachers is among graduates of Arts (67%) and Human Sciences(35%) The most clearcut situation of job orientation from this perspective can be observed in the case of Arts graduates, who basically can chose between two main alternatives: either to become teachers or to pursue an artistic career. State schools of primary and secondary education where the teaching language is Hungarian are a preferred employment target for graduates of teacher training specializations, particularly in the Humanistic fields. The proportion of those who pursue a teaching career is understandably much smaller among graduates in Economics (14%) and Social Sciences (8%), as most job offers connected to their professional qualification are available in non-educational fields.

Wiewed from a national comparative perspective, the results of the tracking survey suggest that PCU graduates tend to perform well in accessing the regional labour market. The percentage of respondents who successfully found a job within the professional fields linked with their studies was 41%, compared to only 27% measured in the case of the national sample. The institution also has a higher proportion of graduates who obtained employment in professional fields outside their field of university studies (26% compared to 17% at national level). (PCU 2011)

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5 Abbreviations of fields of study: H - Humanities, T- Theology, SP – Social and Political Sciences, Ec – Economics, A - Arts.

Table 2. Situation after graduation (%; multiple responses).

	H	T	SP	Ec	A	Total
Situation after graduation						
Employed in his/her field	44	50	35	35	50	39
Employed in another field	44	0	10	25	10	26
Continued in the same workplace	6	0	35	25	0	18
Started a personal business	13	0	5	5	10	8
Engaged in practical training	0	0	0	0	20	2
Engaged in voluntary work	3	0	10	8	0	6
Continued with MA studies	19	0	25	20	10	19
Maternity leave	3	0	10	0	0	3
Engaged in housework	0	0	5	3	0	2
Did not find a job	3	0	15	10	30	11
Extended vacation (journey)	9	0	0	3	0	4
Other situation	0	50	5	15	10	9
Total	144	100	155	148	140	146
Number of respondents	32	2	20	40	10	104

Source: PCU 2011 (translated by author)

Graph 1. The correspondence between the completed fields of of university study and the actual type of first job.

Source: Produced by the author based on PCU 2011 data

It should be mentioned here that the proportion of graduates who found a job outside their own fields of study is comparatively high in the case of Humanities (44% compared to only 15% in the national sample). One possible explanation for this situation might reside in the relatively restricted scale of occupational options available. Humanities graduates are primarily oriented towards pursuing a teaching career by the very nature of their profession and the kind of job offers available within their professional fields. However, the disadvantage consists in the fact that, for those Humanities graduates, who for a reason or another find it impossible to engage in a pedagogical carreer, there are rather limited options remaining within their own fields of study. This is why such graduates will

likely find jobs outside their own professional fields, or alternatively , they might be able to start their own businesses (which is the case of 16% of respondents).

Final remarks

Minority higher education institutions have as their fundamental function to contribute by their specific means to the preservation and development of minority ethnic, national, linguistic and religious identities and cultures. Set up in the tumultuos years marked by inter-ethnic tensions following the revolutionary changes of 1989, Partium Christian University has had a difficult road to navigate until it received full accreditation and recognition as a minority higher education and institution of public interest.

Today, after a long lasting quest for legitimacy in rather unfavorable and often changeable political circumstances, the university is able to offer not only a wide range of study programmes in various scientific and professional fields, but also a fully developed and legally recognized institutional package of teacher training educational services, conducted in Hungarian language and aimed at the preparation of future teachers to work at all levels of mother tongue pre-university education.

The importance of these achievements can hardly be overestimated. However, in order to further develop and fulfill their functions in optimal conditions, minority universities such as Partium Christian University will need a more favorable and stable financial and legal framework. Most of all, there is a neeed for national regulations to fully recognize and favor cultural and institutional pluralism in higher education,. This will enable potential students to freely choose among various forms and types of university education: state or private, minority language or multi-lingual, ecumenical or lay institutional background.

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PREPARING FOR THE CLASSROOM WORK

INQUIRY BASED SCIENCE EDUCATION OF PRE-SCHOOL AGE AND YOUNG SCHOOL AGE CHILDREN

Ivana Rochovská

ABSTRACT

In the paper, the problem of inquiry based education of pre-school age and young school age children is discussed. The paper starts with the characteristic science education as a process of developing scientific literacy of children in pre-primary and primary education. Then, it is focused on to the selection of appropriate teaching resources in science education. Finally, the paper presents an illustration of the most effective teaching resources used in pre-primary and primary science education and their verification in educational practice.

INTRODUCTION

In the introduction of this paper, I would like to start with the presentation of two approaches to the same topic in a primary school natural science lesson.

Approach one: *Dear children, today we will be learning about something related to an inclined plane. The inclined plane belongs among simple machines. It is a flat supporting surface tilted at an angle, with one end higher than the other, used as an aid for raising or lowering a load. The longer, the inclined plane, the less force we use when lifting load.*

But, the same lesson could also look differently: Good morning children. Please, could you help me? I tidied up my cabinet, and in a big box I have plenty of papers, books and exercise books... I need to put the box on the highest shelf. However, it is too heavy and I am too tired to lift it up. How could you help me?

According to my previous experience, pupils usually advise to use a board and to move the box on the board upwards. The teacher could continue the dialogue in the following way:

Really? Are you sure that with the help of a board we use less force? How could you prove that? Let`s do the experiment to verify your statement. What do we want to find out? What do we need? How would we act? What will we change? What will we measure? What remains unchanged? What results do you predict?

Together with pupils, the teacher can formulate the experiment plan. They determine:
− Research problem *(What do we want to find out?)*: How could the used board influence lifting the load up?
− Independent variable *(What will we change?)*: Using the board.
− Dependent variable *(What will we measure?)*: Force spent by the load.
− Constant variable *(What remains unchanged?)*: Height, weight of the load.
− Hypotheses *(What results do you predict?)*: When we use the board we spend less force as when we do not use the board.

The teacher does not use these scientific terms, but he or she just asks pupils simple questions in order to explain the essence of the realized experiment. After the verification of the hypothesis, pupils are familiar with the concept of an inclined plane. Thus, it is easier for pupils to understand it. Moreover, they spontaneously obtain the competence related to scientific methods of obtaining information.

However, one solved problem could become the starting point for other problems:

Children, and what if I have more boards with different length? Is it better to use longer or shorter board when lifting the load up? The following research problem could be: How could the length of the board influence force when lifting the load up?

Children, and what if I turned the box to touch the board by differently large surfaces? The following research problem could be: *How could the surface area of the box influence force when lifting the load up the board?*

There are many issues which could be solved experimentally and during the solution of problem tasks, children obtain knowledge, skills and competence. According to R. Tomkuliaková and A. Doušková (2012), in lower levels of school, the problem tasks are created by the teacher, but the partial problem tasks could be created by children.

However, first it is necessary to fix the obtained knowledge, skills and competence. One very good way is when the teacher offers the pupils some non-specific tasks where they could apply them. For example:
– *Which way would the tourist choose to use less force? (Fig. 1a)*
– *Who uses more force when pulling the sled up the hill – the child or the adult? (Fig. 1b)*
– *In which case will we use less force to move the wardrobe on the floor? (Fig. 1c)*
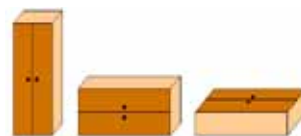
Figure 1a	*Figure 1b*	*Figure 1c*

The previous examples illustrate how the process of science education in primary school could look. In this paper, I would like to deal with the aspects of science education in primary schools as well as pre-schools which include teaching methods, organizational forms and material teaching resources. Why is this topic so important? Simply put, the topic is extremely important when considering the last published results of international measurements of the levels of scientific literacy of pupils and their achievements in science.

Therefore, the objectives of this paper are:
– On a theoretical level: to define the concept of scientific literacy, and to select appropriate teaching resources for use in the science education of pre-school-age and young-school-age children,
– On a methodical level: to illustrate the process of the science education of pre-school-age and young school-age children regarding teaching resources,

– On an empirical level: to present the most recent research results dealing with the scientific literacy of children in the four Visegrad countries, and to present the most recent research results dealing with the influence of the selected teaching resources on the developing children's scientific literacy.

Regarding the content of this lecture:

– I will start with science education as a process of developing scientific literacy of children in pre-primary and primary education.

– Then I am going to move on the selection of appropriate teaching resources in science education.

– Finally, I will present an illustration of the most effective teaching resources used in pre-primary and primary science education and their verification in educational practice.

SCIENCE EDUCATION AS A PROCESS OF DEVELOPING SCIENTIFIC LITERACY OF CHILDREN IN PRE-PRIMARY AND PRIMARY EDUCATION

In general, the fundamental task of education is to transfer the culture of the particular society to the younger generation. The idea of education is to "absorb the results of knowledge and experience, which humanity has summarised..." (Opravilová, 1988, p. 17).

However, the requirement to pass on all the information to the younger generation is utterly unimaginable. This is because our culture keeps constantly reproducing and the sum of knowledge is constantly on the rise.

It is impossible, even today, to become familiar with the knowledge of the world, not only in its basic terms. Information explosion creates constantly bigger conflict between the limited capacity of the human brain and the ability of the individual to absorb the constantly increasing information (which are changing and become obsolete very quickly). Even encyclopaedias get older quicker than humans.

This conflict can be solved only in such a way that we change the main goal of school education. Instead of passing on a great deal of mainly factual information, school graduates (especially in science education) should rather be getting more tangible values and skills, than just mechanically memorised definitions, formulas, dates of birth of famous personalities, etc. (Turek, 2006). Instead, they should acquire the key competences, necessary for being able to master the tasks of ordinary life. Generally speaking, the goal of education is to develop the key competences. From this, we can follow the goal of science education, which is the formation of scientific literacy.

The term *literacy* has a different meaning in the common language than in pedagogy. While in a common language, one imagines literacy as being related to reading and writing, in pedagogy, literacy becomes the object of various researches and measurements of so-called reading literacy, mathematical, as well as scientific literacy.

I would like to choose only two definitions which accurately represent the term scientific literacy:

According to the National Research Council scientific literacy means "...knowledge and understanding of scientific concepts and processes required for personal decision making, participation in civic and cultural affairs, and economic productivity".

According to the OECD PISA study, the term scientific literacy is perceived as "...the capacity to use scientific knowledge, to identify questions and to draw evidence-based

conclusions in order to understand and help make decisions about the natural world and the changes made to it through human activity".

The last international measurement of scientific literacy of pupils at the end of their compulsory schooling was realized in 2012 by OECD PISA. The measurement was carried out in 65 countries. Pupils solved the test in the language they are taught in, with the test consisting of various tasks, for example:

The pupils were requested to answer if the following questions about tooth decay could be answered using scientific experiments. They would solve the task correctly if they circled the question: "What would be the effect on tooth decay of putting fluoride in the water supply?" Thus, they should reflect the influence of the independent variable on the dependent variable (*Fig. 2*).

The following example of the test task is: "Which one of the graphs indicates the most appropriate place to establish a wind farm for generating electricity". The C was the correct answer (*Fig. 3*).

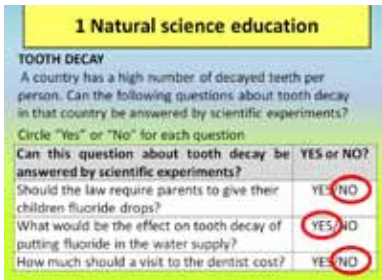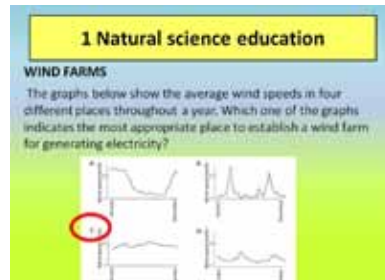| *Figure 2*	*Figure 3*

The OECD PISA study is not the only international study related to students` achievements in science. TIMSS study summarizes fourth and eighth grade student achievement in science in each of the 63 countries and 14 benchmarking entities.

The study focuses on the assessment of students` learning outcomes regarding their acquirement of the knowledge and skills that are determined incurricular documents.The examples of the tasks used in the study are:

A ribbon is tied to a pole to measure the wind strength as shown below. Write the numbers 1, 2, 3, and 4 in the correct order that shows the wind strength from the strongest to weakest (*Fig. 4*).

The pupils were also asked the main reason we can see the Moon. They were expected to correctly answer that the Moon reflects light from the Sun (Fig. 5).

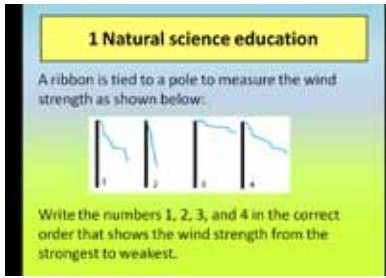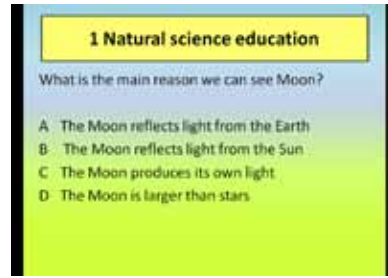*Figure 4*   *Figure 5*

The research published the following results for the Visegrad countries: According to the OECD PISA study in 2012, two countries obtained scores above the average (which was 501 points) and two countries below the average. The best score from these countries was achieved in Poland – 526 points, the pupils from The Czech Republic obtained 508 points. Worse results were obtained by Hungarian pupils – 498 points, and the worst score was obtained by Slovakian pupils – only 471 points.

Between 2006 and 2012, Poland increased its shares of top performers and simultaneously reduced their shares of low performers in science. On the contrary, Hungary and Slovakia reduced their shares of top performers, and increased their shares of low performers in science. For comparison, the result of Shanghai, with the highest score of 580 points, and the result of Peru, with the lowest score of 373 points, can be mentioned.

According to the TIMSS study in 2011, the achievements of 4th grade students from the Visegrad countries were the following: The Czech Republic obtained the best score from these countries (536 points). Similar results were obtained by pupils from Hungary (534 points) and the Slovak Republic (532 points). The worst results among Visegrad countries were in Poland (505 points). However, all of the countries were above the average, which was 500 points. When comparing the best results from all of the measured countries, Korea had 587 points and the worst results were obtained in Yemen, with 209 points.

According to the already mentioned results, which are alarming, the Visegrad countries have to deal with the issue of scientific literacy and science education in a more intensive way as they did till now. Emphasis should be placed on the more effective use of teaching methods, more effective organizational forms and more effective material teaching resources.

It is necessary to focus at not only the obtaining more science knowledge by pupils, but mainly on the improving their ability to solve real problems related to natural science, as I have illustrated in the beginning of the lecture. It requires better comprehending science topics by pupils, better understanding science phenomena, as well as better using science-based facts.

SELECTION OF APPROPRIATE TEACHING RESOURCES –
TEACHING METHODS, ORGANIZATIONAL FORMS AND
MATERIAL TEACHING RESOURCES – IN SCIENCE EDUCATION

When teachers prepare for science education in pre-schools or in primary schools, they have at their disposal the plenty of teaching methods, organizational forms and material teaching resources. But, how they could select the most appropriate ones?

There are various criteria for choosing the most appropriate teaching resources:

– At first, there are the **objectives** of educational activity (in pre-primary education), and objectives of science lesson (in primary education).

– Then there is the **content**.

– Also it is important which **educational philosophy** a teacher prefers.

– Last but not least a teacher has to take into account the **pupils'** individual personal characteristics (e.g., learning style, type of intelligence, temperament, level of knowledge and skills).

In many works in the field of science educational research we often come up to questions about the origin of human cognition. It cannot be unanimously stated *what the origin of knowledge is and what its function is in relation to subject – environment.* We know that there are three main, mutually competitive theories of knowledge – empiricism, rationalism and constructivism – works dealing with the didactics of natural sciences prefer constructivism. The reason is obvious, both empiricism and rationalism understand knowledge as independent from functioning of human beings in their environment.

According to the empiricism, knowledge comes from experience (particularly the sensory one), which is only either purely registered or introspectively processed by the subject. According to the rationalism, knowledge is given beforehand, pre-determined. On the other hand, epistemology of constructivism perceives cognition as the consequence of human activity through which it interacts with the environment.

Ernst von Glasersfeld quoted Italian philosopher Gambattista Vico, as a famous precursor of constructivism, who claimed that only God can know the real world, because only He knows what He created and how, in contrast to man, who can know only things which he created. Grayson H. Wheatley (1991) emphasized the two constructivist principles:

– *Knowledge* is not passively received, but is *actively built up by the cognizing subject*. That is, as much as we would like to, we cannot put ideas in children's heads, they will and must construct their own meanings.

– There is not an objective reality that can be determined, but rather that *all reality is created by individuals.*

According to George W. Gagnon a Michelle Collay (2005), the pillars of constructivist learning based on the basic theses:

– knowledge is physically constructed by learners who are involved in active learning.

– knowledge is symbolically constructed by learners who are making their own representations of action;

– knowledge is socially constructed by learners who convey their meaning making to others;

– knowledge is theoretically constructed by learners who try to explain things they do not completely understand.

Constructivist thoughts have significant impact on the contemporary perception of

science education. An active role of the child is stressed, who constructs the meanings on the basis of cognitive structures that he or she has already formed. In such perceived education, there is a certain degree of imbalance between a child's already acquired knowledge and knowledge that is yet to be acquired. Constructivist teacher introduces troublesome situations so that the children e.g., express their own ideas, form questions, debate problems, express their own opinions, form objectives, collect materials, form hypotheses and prove them, draw conclusions.

There are several theories of constructivist didactics, for example:
– the theory of discovery learning,
– the theory of meaningful learning,
– the theory of the epistemological interference of preconceptions,
– the theory of conceptual change,
– experiential learning.

Illustration of the most effective teaching resources used in pre-primary and primary science education and their verification in educational practice

The goal of the final part of this paper is not to list and characterize all of the teaching resources appropriate for science education, but I would like to focus at my attention to concrete educational activities in which some of them were used. These activities apply the teaching resources that are widely considered to be the most effective in science education.

The proposed and verified set of educational activities for the pre-primary education is called **The secrets of the Universe** and the objective was that children expressed their imaginations about the Earth, the Sun, the Moon, the planets and stars obtained through observation and through media by various means of expression.

I am going to present just the most interesting activities. Children created the model of solar system. At first, they observed the pictures of the planets in an encyclopaedia, and they focused mainly on the size and colours of the planets. Each child has chosen one of the planets which he or she created by use of a balloon, paper, glue and tempera.

Then they observed the location of the planets within the Solar system and with the help of the teacher they created the orbits by use of strings. Each child, keeping the planet above his or her head, was moving to orbits according to the rhythm of the music. Then the reflection of the activity followed. At the end of the whole project, the teacher realized excursion into the planetarium where they absolved the educational programme for children.

In this project the teacher used teaching methods and techniques, such as observation, manipulation, demonstration, practical activities, artistic activities, discussion, didactic play; organizational forms, such as education in classroom, excursion, individual work, group work, frontal work; and material teaching resources – pictures, books, models of planets, various art material.

The entire project was published in the book entitled "Using the Experiential Learning Methods in Nursery School" (Krupová, Rochovská, 2012).

In the following proposed and verified educational project, the starting point was the study of children`s preconceptions about air and weather. I tried to obtain the imagination about their knowledge and experience related to air, clouds, rain, snow, wind, hail, fog, dew, frost, rainbow and storm. Stemming from the obtained preconceptions I proposed the educational activities focused on the developing children`s ideas about the already mentioned natural phenomena. The activities applied investigative methods as well as the supporting activities – artistic, music, physical or dramatic.

The children were asked questions about the air and weather, for example, what air is and whether or not we can see it, hear it, smell it and touch it. The children answered, for example, that air is the same as wind, or that the air is needed for breathing. They believed that we see air in winter (when blowing) and we hear it if the strong wind blow. The developing children`s preconceptions was realized through various activities, during which they could inquire the properties of air.

They also dealt with the air pressure. The teacher did not tell them the academic information about the pressure. However, she let them to obtain experience from the experimentation with air pressure.

The children together with the teacher realized several demonstrations related to weather. For example, they demonstrated fog in a following way. They put the hot water into the glass bottle, representing the water surface in the planet Earth. Then they put the cube of ice on the top of the bottle, representing the temperature of the air. The children with the help of the light observed the vapour in the bottle, which converted into the water drops. In the following activity, the children observed dew which was created on the surface of the glass into which the children put the cube of ice.

After the realization of the whole project, I asked the children the same questions as in the beginning. I found out that their imaginations about the air and the weather were developed as well as they enriched their vocabulary related to the topic.

At the present time, I am preparing the publication in which the whole educational project will be characterised and illustrated. The title of the book will be "Scientists in Nursery School"(Rochovská, Krupová, 2015).

I would also like to present the parts of the proposed developmental programme for pre-school-age children with the use of investigative methods. The developmental programme has already been published in the book entitled "Using the Investigation Methods in Nursery School".

In the opening activity, a "miracle box"for children was introduced. Children were playing a game – they tried to differ various objects in the box according to various criteria. They put the hand into the box, catch one of the objects and they were asked to determine if the object is hard or soft, smooth or rough, warm or cold.

In other of the investigative activities, the children were required to experimentally prove if the material is waterproof or not. During the activity a child should obtain the abilities to tell his or her assumption, if the material is waterproof or not, to practically verify his or her assumption, to explain the term waterproof and to choose the material from which we could make a raincoat or an umbrella.

Children also proved if the object floats or sinks. Children were extremely interested in the activity when they found out, that the played dough in spherical shape has sunk, whereas the same played dough in the shape of the boat floated. When working with the pre-school-age children, the teacher should not tell them either about density or about Archimedes` principle. The children should just observe how objects behave under certain conditions. Furthermore, the children investigated if the material is able to keep warm (Fig. 15), if the material is shiny or matte, or if the material is translucent or not.

They absolved a total 17 educational activities related to the investigation of materials and the properties of various objects. Each activity started by expression of children`s preconceptions about the given topic. Then, the children assumed the result of the experiment, investigation or demonstration, and then practically verified their assumptions. At

the end of each activity, the children, together with the teacher, discussed the function of given phenomenon in the real life.

The teacher used teaching methods and techniques, such as investigative methods, observation, experiment, manipulation, demonstration, practical activities, artistic activities, discussion, problem solving; organizational forms, such as education in the classroom, walking, group work; and material teaching resources such as water, play dough, various objects of daily use.

This developmental program – related to investigative methods – was experimentally verified in the educational practice. The research problem was the question of whether or not applying the proposed developmental programme for the pre-primary education has influence on the improvement of the scientific literacy of children at the preschool age. The main goal of the research was to experimentally verify the effectiveness of the proposed developmental programme of the pre-primary education.

We formulated three hypotheses.
– H1: The *level of scientific literacy* of children at the preschool age, tested through interviews, will statistically significantly be increased by applying the proposed development programme.
– H2: The *level of the ability to define material and the object's characteristics* in children at the preschool age, tested through interviews, will statistically significantly be increased by applying the proposed development programme.
– H3: The *level of the ability to explain the reason of the scientific phenomena* in children at the preschool age, tested through interviews, will statistically significantly be increased by applying the proposed development programme. The structure of the experiment can be graphically illustrated.
400 children, aged 5-6 years, were engaged into the selected set of the experimental research. We evaluated the entrance and exit interview of 200 respondents from the control group and 200 respondents from the experimental group. To find out the level of scientific literacy before and after experimental interference, we used an interview with children.

Figure 6
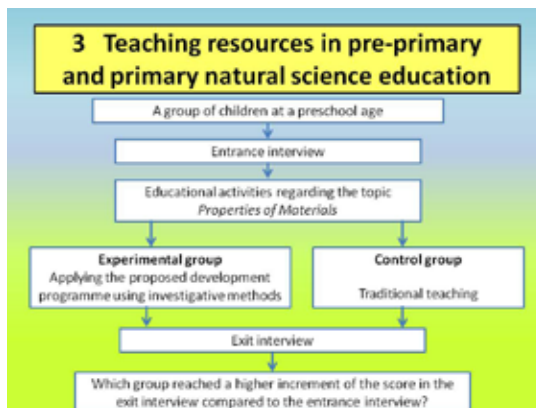
They were asked questions about things made of wood, glass, plastic, textile, metal or cork. *What is it? What is it like? What is it made of?* Continuously, they were requested to choose one or more objects according to the given specification, for example, shiny, matte, translucent, elastic, waterproof. And finally, they were requested to answer the questions and explain their answers. A researcher asked them, for example: What will happen when you hold an icicle in your hand? *What will happen when you put a glass with water into the freezer? What will happen when you put a sponge into a bowl with water?*

In the first table (*Fig. 7*), it is stated what average weighted score the children reached in the experimental group and the control group, in the entrance and exit interviews, when considering their answers to all questions. As can be seen, the children in the experimental group improved 18.38 percentage points in the exit interview, whereas the children in the control group improved only 5.16 percentage points.

In the next table (*Fig. 8*), the average weighted score the children reached is stated, when considering the answers to questions related to the ability to define material and the object's characteristics. As is seen, the children in the experimental group improved in the exit interview 15.66 percentage points, whereas children in the control group only improved 2.14 percentage points.

In the following table (*Fig. 9*), the average weighted score the children reached is stated, when considering the answers to questions related to the ability to explain the reason of the scientific phenomena. As is seen, the children in the experimental group improved in the exit interview 29.04 percentage points, whereas children in the control group only improved 8.81 percentage points.

Figure 7   *Figure 8*

Figure 9   *Figure 10*

For a statistical validation of all hypotheses, we used an χ2 test. I have formulated a zero and alternative hypotheses. The observed multiplicity of children of the control and experimental groups in which there was, or was not, an enhancement of the score in the entrance and exit interviews (minimally by 10 percentage points), are recorded in tables. From the observed multiplicity, the expected multiplicity was calculated according to the formula: the expected multiplicity equals the sum in the column divided by the total number times the sum in the row. For the calculation of the level of the statistical significance (the so-called p-value) the CHITEST was used. The reached level of statistical significance was compared with a value of 0.05. If the calculated value was significantly lower than 0.05, it was possible to reject the zero hypothesis and accept its alternative. It occurred in all cases, so all hypotheses were confirmed at the level of 5% significance (*Fig. 10*).

Total research results are analysed in the publication (Rochovská and Krupová, 2014).

CONCLUSION

Stemming from the research, including the observations of the educational process according to the proposed developmental programme, the following conclusions can be formulated:
– asking the children *questions* – what?, where?, when?, why?, how?,
– giving children scope to explain their *opinions* and apply their own *ideas*,
– continuously evoking their *curiosity* and *interest* in new things,
– establishing *solutions to problems* appropriate to their understanding,
– *evaluating* their own performances,
– enabling children to *work with equipment,*
– concentrating on an activity for a longer time,
– acquiring information individually.

I recommend that teachers in pre-primary and primary education accept children`s preconceptions, to try to understand - through them - the children`s understanding of the world and raise in children a conceptual change from which they will accept scientific conceptions after finding out that they are more acceptable than their previous conceptions. It is always necessary to interconnect new knowledge with acquired knowledge, to deepen it and to apply the knowledge in real life. Through cognitive conflict, it is necessary to put forward disruptive events to the children and thus encourage them to get involved in thinking.

Children should be lead to *make their own investigations* – that is the key point when choosing appropriate teaching resources of science education of pre-school-age and young-school age children.

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SUPPORTING OF SIMULATION AND VISUALISATION IN E-LEARNING COURSES FOR STEM EDUCATION

Gertruda Gwodz-Lukawska & Robert Janiga & Jan Guncaga

ABSTRACT

Significant development of information and communication technologies and especially the Internet boom bring new possibilities in education of different subjects of STEM (Science, Technology, Engineering, and Mathematics). Information technology has provided new innovations to sustain constructing an artificial educational environment by means of computers. Certain artificial environments sometimes go beyond natural environments, such as simulations and virtual reality, which is a sophisticated educational technology. A computer simulation, which enables essential functions of laboratory experiments to be carried out on a computer, is called a virtual laboratory. This simulation support aspect of visualisation in educational process in different school subjects and it is possible to use it in educational process in different study programs at universities including e-learning courses. Understanding of new notions through visualisation belongs to important factors in the constructivist educational approach. The article introduces suggestions for education in this area and deals with the methods, forms, and problems of this kind of education.
Keywords: Computer Based Education, Motivation in STEM subjects, simulations, e-learning platforms, virtual laboratory.

INTRODUCTION

Significant development of information and communication technologies and especially the Internet boom brings new possibilities in computer science education at all levels of the educational process. Information technology has provided new innovations to sustain constructing an artificial educational environment by means of computers. Certain artificial environments sometimes go beyond natural environments, such as simulations and virtual reality, which is a sophisticated educational technology (Látal, 2012).

Simulations are also important in mathematics and science education. They assist in understanding and visualizing of new concepts and arguments. Visualizations and simulations can rely not only on ideas of a particular subject and the movement, but also on represented schemes and structured diagrams that represent the relationship among the examinee. Mental image operations may be supplemented by actual test handling and generally in a particular handling and result (Gunčaga, Fulier, Eisenmann, 2008).

Computer simulations in science education often go into virtual reality applications. The virtual reality is distinguished by unique sorts of interaction, that responds to users' behaviours and actions. It is considered to be a new model of computer-based learning that provides the individual learner with a wider range of scientific vision (Babateen, 2011).

Remotely controlled experiments are experiments that are assembled from real physical aids and devices, but can be controlled in real time via the Internet from anywhere in the world. This (not new, but it is currently not fully exploited) type of experiments gives many people a very strong emotion, either very positive or very negative. Our goal is not to replace traditional school "face to face" experiments remotely controlled experiments, but to offer secondary school and university teachers and their students other alternative experimental work in technical subjects.

Virtual laboratory is a computer simulation, which enables essential functions of laboratory experiments to be carried out on a computer is called a virtual laboratory. They offer the opportunity to simulate real equipment and experiments.

VIRTUAL LABORATORIES IN STEM EDUCATION

During the last decades, the information and communication technology has witnessed a rapid development in all fields. The resources of knowledge became various and numerous. The STEM courses are obviously connected with technology, both cognitively and practically. Yet, educational professionals consider the importance of integrating information and communication technology in education mostly in e-leaning, as to facilitate studying many scientific phenomena that cannot be studied experimentally due to its danger, or lack of time to complete the experiment. Furthermore, it will help the student in investigation and searching, which are considered the main aims of STEM teaching. (Al-Shaie, 2006, Dillon, 2007). The fields of internet-based learning are diverse, including virtual laboratories (see Fig. 1), which are considered the main underpinning in practical electronic learning, seeing that virtual labs closely resemble real labs (Al-Baiati, 2006, Salamah, 2007).

Figure 1. Virtual lab (Látal, 2012).
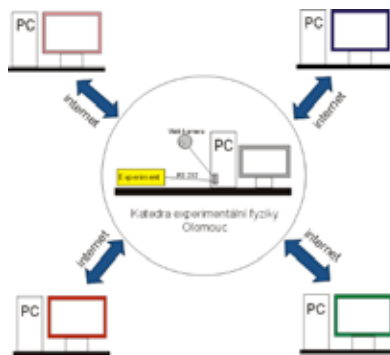
Moreover, a technology-enriched environment would greatly enhance students' motivation and develop positive attitude towards the course. Subsequently, the academic achievement would be enhanced. Several studies emphasized the vital role of virtual labs in developing academic achievement, providing awareness of scientific concepts, and modifying misconceptions.

This is the scientific method, in which the artificial induces a storyline with predeter-

mined conditions so that it can be under the same conditions repeated. During an ongoing experiment objectively monitor measurements using instruments interdependence of physical quantities under the influence of the smallest number of distractions. Experiment is the means of knowledge and also a specific form of practice. The results generalize to form physical law (usually described mathematical model), while the other attempts to verify accuracy. (Vybíral, 2006; Mechlová, 1999)

When real experiment is replaced by a computer model, the experiment therefore takes place in the form of a simulation. Virtual laboratories have emerged above all on the Internet (World Wide Web). However, these experimental virtual laboratories in JAVA format (and also those in VRML and Shock-wave-Format) mainly represent classic simulations, which are not intended to represent laboratory experiments in a realistic fashion. Simulations which attempt to represent the real laboratory experiments as closely as possible we call virtual labs.

Laboratory experiments can be described as virtual when the experiments are controlled not by direct manipulation of laboratory equipment, but by means of a computer, which is linked up to the actual laboratory equipment via a network (for instance, via the WWW). This type of virtual laboratory is called remote laboratory. Generally speaking, virtual laboratories, like simulations, are intended to transfer conceptual and procedural knowledge. Since this knowledge refers to the preparation, the performance and the evaluation of laboratory experiments, it is necessary to impart both background knowledge and also knowledge referring to actually carrying out the experiment. As with simulations in general, virtual labs can also facilitate a range of different learning processes: solution of (complex) problems; discovery of new content and new assessment of already known information by means of discovery learning; construction of general principles from experimental work and comparison of individual phenomena (inductive learning).

Virtual laboratory as an educational technology provides an advanced individualized learning perfectly meets the educational needs and provides a high level of flexibility and freedom from constrains of time and place. One of the most important features of virtual reality is the easily and continuous material update aiming to attain learning objectivity and interest (Al-Shanak, Doumi, 2009). With the increasing popularity of virtual educational technology, globally and locally, the development of virtual learning environment became an important field of e-learning which has its own basics and principles.

The learner is constrained to the theoretical method in acquiring knowledge, rarely allowed to apply this knowledge practically. This is due to several reasons including; the lack of laboratory devices, the risks that may result from applying some scientific experiments, and the high cost of materials (Al-Radi, 2008). The above display demonstrates the need to apply virtual learning environment in teaching e-learning courses for STEM education.

THE IMPORTANCE OF VISUALIZATION AND SIMULATION IN MATHEMATICS EDUCATION

In mathematics education it is important to represent and visualize various mathematical concepts, relationships and practices, respectively algorithms. Visualization is usually implemented through different models. The model may take the form of real

mathematical device, but may also be implemented in a suitable virtual software environment. The virtual environment simulates either real environment or seemingly phenomena resembling reality and it are created with a computer. Benefits of using models in the teaching of mathematics are that the student can manipulate with the model. Handling real model is via haptics, virtual model manipulation takes place for example by virtual pen or computer mouse.

However, it is important for visualization of mathematical object or relation use appropriate and correct model. It often happens that poorly chosen model of representation of mathematical phenomenon or situation may result in not only a misunderstanding, but may also be able to create misconceptions. Detect and remove misconceptions is then a time consuming, difficult and complex process.

The method of generating problems (see Wittman (2001)) seems to be suitable for this kind of education (due to its systematically creating sets of internally connected problems). Student´s activities and instructions have to be regarded as complementary factors in the learning process (see Kopka (1997)). These factors both are necessary and must be systematically related to one another so that optimal progress may occur. The aim of our method is to create areas in which the students may–using the result of guided teaching–move as independently as possible, and in which he/she may develop their own initiatives. The student is considering his own problem and he could ask for help as far as it is necessary. By this way he can obtain basis for further work. After a problem has been completely solved and clarified the teacher together with students is thinking about further questions and generate problems which are related to the problem just solved. Thus the original problem acts as a generating problem; we will call it generator problem (GP). Related problems are obtained by analogy, variation, generalization, specialization etc. The group of all new problems together with their GP will be called the set of generated problems of the GP or the problem domain of GP. This method is possible to demonstrate with GeoGebra for example by the generator problem – examples from historical mathematical textbook Visual Geometry (see Močnik (1856)).

Example 1. Construct three circles with done radiuses *m, n, p,* that each circle touch other from outside.

Solution: We construct the triangle *ABC* with sides $AB = m+n$, $AC = m+p$ and *BC* $= n+p$ Now we construct the circle with centre *A* and radius *m*, circle with centre *B* and radius n and circle with centre *C* and radius *p.*

The circles fulfilled the condition of the task.

Figure 2. GeoGebra construction in Example 1.
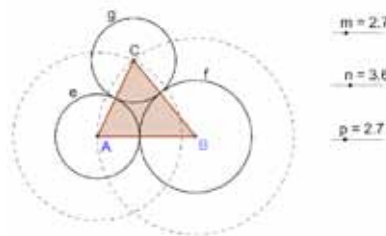
Example 2. We have done three same circles, which touch each other outside. We must now circumscribe fourth circle, which previous three circles touch inside.

Solution: We use construction of previous example and orthocentre of an equilateral triangle *(see Figure 3).*

Figure 3. GeoGebra construction in Example 2.
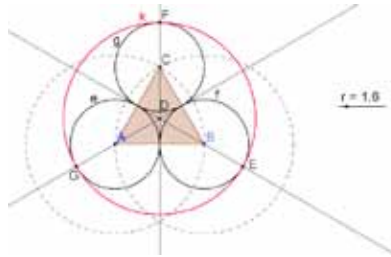
GEOGEBRA SIMULATIONS AS A TOOL FOR MODELLING IN E-LEARNING COURSES FOR STEM EDUCATION

An important aim of working with students is not just teaching them, but making them try out and conclude and get the knowledge just "by accident". The pedagogy is built on research on learning that shows that most students do not respond best to pure "chalk and talk," but rather to "active learning" environments. Experiments keep learners engaged because they get a hands-on experience.

In this part of study we show an innovative method of experiencing mathematics by puzzling.

Creating e-puzzle games was possible due to GeoGebra 5.0.125.0-3D software. In the mathematical environment virtual puzzle can be moved by shifting, rotating, putting on, covering a part of and deforming.

In this way almost classical puzzle, scrabble, scattered, rotated and covered blocks have been built.

We show some examples of using puzzle games in e-learning courses. Those courses are made in Moodle platform and contain:
– lessons with theory (there are simulations showing how to draw for example a function with given asymptotes),
– exercises needed to practice new topic (they consist of many puzzles and other applets which allow repeating until they are made properly),
– tests enabling checking whether the material is already understood.

Example 3. Draw a graph of a function f that fulfils the following conditions:

f has $y = 0$ as asymptote when x tends to $-\infty$,

f has the vertical asymptote $x = 0$.

As it is very hard to check if the drawn graph is correct (as there are infinitely many solutions) we propose a method in which student doesn't have just to make the proper graph, but he has some puzzles with curves and his role is only to try to make the graph in the GeoGebra applet and then choose which puzzles he had to use (with or without the appropriate order).

Figure 4: Part of e-learning course made on the Moodle platform.

Lekcja 3 - Szkicowanie asymptot

Ćwiczenie 1

Funkcja $f : \mathbf{R} \to \mathbf{R}$:

- posiada asymptotę pionową obustronną $x = 0$.
- posiada asymptotę poziomą w $-\infty$ $y = 0$.

Ułóż z puzzli przykładowy wykres funkcji f.

Zaznacz, które puzzle zostały wykorzystane.

Solution: While moving puzzles a student see that some conditions are fulfilled or not due to the puzzle number (correct or not).

Figure 5: GeoGebra puzzle in Example 3.
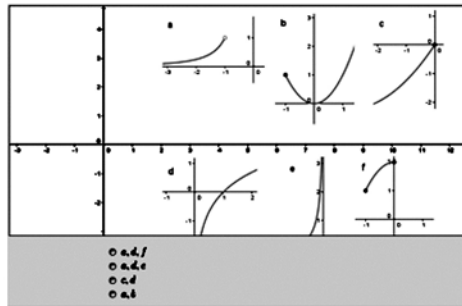
Figure 6: Wrong graph in Example 3.
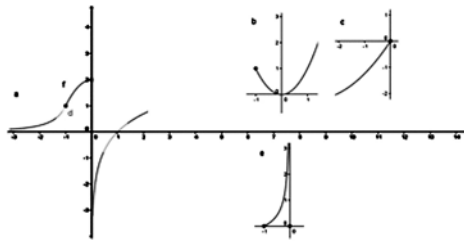
Figure 7: Correct graph in Example 3.
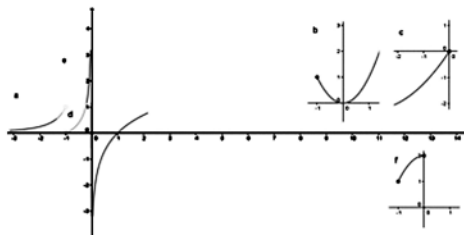
Example 4. Use the puzzles to build appropriate surface. Choose which puzzles one has to use.

Figure 8: Sample surface in Example 4.
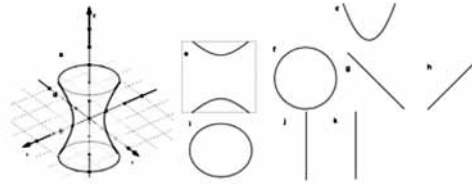
While trying to make the appropriate surface, student can make a mistake and then he gets the answer "Wrong answer. Try again." and he can use another puzzles to correct oneself and it helps him remember how to draw a good representation later.

At the end, it is worth to mention another very fast way of showing/simulating facts during lectures. It is MobileQuiz, made in Mannheim University, which allows doing some practice while making simple quiz.

Example 5. Solve the equation $(x-2)^2-4=0$.

You can use the movable graph to make it easier.

Figure 9: GeoGebra puzzle in Example 5.
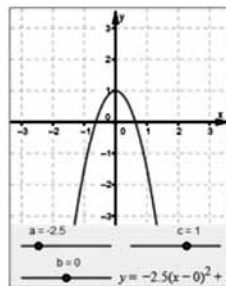
This is a very good way to support students while making the test and give them a tool to check if they are right or no (not just examining but giving the possibility to get the knowledge even during the quiz).

CONCLUSION

Dynamical Geometrical Systems (DGS) is an environment for pupil's experiments and it is one of kind of virtual mathematical laboratory. The method of generating problems we can use in different parts of school mathematics. For other applications see Billich (2013). The GeoGebra research community has already international character which brings the opportunity to exchange the experiences in the field of motivation of pupils and students in mathematics education.

Generally, one possible tool in STEM education is demonstration of experiment through virtual laboratory. How we described above, the virtual Lab Concept was defined as "laboratory experiment without real laboratory with its walls and doors. It enables the learner to link between the theoretical aspect and the practical one, without papers and pens. It is electronically programmed in computer in order to simulate the real experiments inside the real laboratories." (Harry, Edward, 2005).

Visualisation through simulation in STEM education helps students to understand new notions, relationships between them and incorporate this new knowledge in existing structure. It is important for development of different levels of thinking in science education. Simulation is possible to use in many e-learning courses for STEM education, it is possible to use interdisciplinary approach (see also the website http://www.scientix.eu).

Real experiment is impossible to change through virtual experiment in educational process. The role of the virtual experiment is such supporting tool for better understanding of principles of demonstrated phenomena. If teacher hasn't possibility to realize real experiment, he/she can use virtual experiment using computer simulation.

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LANGUAGE ASSESSMENT LITERACY IN HUNGARY: CURRICULAR REQUIREMENTS OF ENGLISH TEACHER TRAINING VS. TEACHERS' PERCEPTIONS OF THEIR

Ildikó Csépes

ABSTRACT

In this paper, the conceptualisation of Language Assessment Literacy (LAL) will be reviewed briefly, trying to relate it to the curricular requirements of English teacher training in Hungary. In addition to training would-be teachers in various aspects of 'assessment of learning', there seems to be a slightly more prominent role given to 'assessment for learning' (Black & Wiliam, 1998) in the most recent Government Decree (2013). However, on comparing the language assessment content of various English teacher training MA programmes in Hungary, it was found that trainees may be exposed to widely different training in language assessment, ranging from minimal to substantial in its scope and coverage. Furthermore, when the training seems to cover adequately all the relevant skill areas of the qualification requirements, graduates still call for further practical training in such aspects that belong to 'assessment of learning' (e.g. assessing the productive skills) rather than 'assessment for learning' (e.g. portfolio, self- and peer assessment). Possible reasons for this will be discussed.

INTRODUCTION

Raising the standards of language learning in the state school system is a national endeavour but the best ways to promote it have not been found yet. It seems reasonable to assume that if high quality teacher education is offered then would-be teachers will be equipped with the right level of skills and knowledge to succeed in their jobs. The prescribed elements of teacher education can be found in government decrees that detail the pedagogical and subject specific competency areas, and eventually these qualification requirements are translated by curriculum and course designers in teacher education programmes. In this way, it is believed that the outcome of teacher education will be satisfactory as a result of the external quality control measure. However, what seem to be well-defined professional intentions by policy makers may not necessarily be realised in practice. In this paper, I will examine what seems to shape the Language Assessment Literacy (LAL) of English language teachers in the Hungarian context, and discuss what specific training needs recently graduated teachers claim to have in their daily classroom practice. The term, Language Assessment Literacy was introduced by Stiggins in 1991 (as quoted in Inbar-Lourie 2013), and it is targeted at the knowledge and skill areas in classroom assessment teachers should possess. I will also make some suggestions as to what steps could be taken in order to answer the challenges in developing LAL for English teacher education in Hungary.

THE DEVELOPING CONCEPT OF LAL

As early as the 1970s and 80s, suggestions were already made as to what teachers should be skilled at in the area of assessment (Schafer 1991, Stiggins1991), but a comprehensive framework, called Standards for Teacher Competence in Educational Assessment of Students, was drawn up only in 1990 by the American Federation of Teachers, the National Council on Measurement in Education and the National Education Association. The Standards were designed to guide pre-service and in-service teacher education programs in the area of assessment. There were seven standards in which teachers were expected to be trained, including the following:

(1) choosing assessment methods that are appropriate for instructional decisions;

(2) developing these methods;

(3) administering, scoring, and interpreting externally produced and teacher-produced assessment results;

(4) using results of assessments in making decisions for individual students, planning teaching, developing curriculum, and making school improvements;

(5) developing valid, assessment-based grading procedures;

(6) communicating results of assessments to student, parent, and other lay audiences, and educators;

(7) recognizing methods and uses of assessment that are unethical, illegal, or otherwise inappropriate.

Since the introduction of The Standards and the first appearance of the term, Language Assessment Literacy (LAL), there has been a gradual change in the conceptualisation of what teachers need to know: alongside measuring learners' achievements, they are more and more encouraged to use various assessment tools in order to facilitate learner's progress in learning. The summative functions of classroom assessment will be clearly retained as outside the classroom "assessment operates on the external institutional level for ranking, monitoring and placement purposes, teachers and administrators are expected to be familiar with external assessment formats, assessment procedures and data analysis, so as to interpret the results and feed them into their teaching (Inbar-Lourie, 2008: p. 388).

The term 'assessment for learning' has been put forward (Black & Wiliam, 1998) to complement traditional assessment practices that emphasize target achievement, or 'assessment of learning'. According to the principles offered by the Assessment Reform Group in the UK in 2002 (updated in 2010), assessment for learning, among other things,

– should be recognised as central to classroom practice;

– should take account of the importance of learner motivation;

– should promote commitment to learning goals and a shared understanding of the criteria by which they are assessed;

– develops learners' capacity for self-assessment so that they can become reflective and self-managing;

– should promote commitment to learning goals and a shared understanding of the criteria by which they are assessed.

It is thus not surprising that Falsgarf (2005, as cited in Inbar-Lourie, 2008) refined the definition of Assessment Literacy, too, according to which it should refer to teachers' ability to understand, analyze, and apply information on student performance to improve instruction.

There is still a considerable interest in refining the role of assessment in language learning and what it is that classroom teachers need to know about the theory and practice of language assessment. In the professional literature new terms have been proposed to separate the developing new concept of LAL from the old one, introducing Language Oriented Assessment [LOA] (Carless, 2007, 2014) and Teacher-Based Assessment [TBA] (Davison & Leung, 2009). While rightfully acknowledging both the summative and formative function of assessment in the classroom context, in the old conceptualisation of LAL there seemed to be more emphasis put on psychometric properties of tests, i.e. basic qualities such as test validity and reliability, the latter of which, however, can be hardly verified in small-scale testing contexts, given the small number of test takers. Because the role of assessment in the classroom is being of reconsidered, formative assessment used for diagnostic purposes, whereby the qualitative information is used to promote the learning of individual students, has been assigned a more prominent role. In the past, formative assessment received very little attention and scrutiny from the testing profession because the form it may take may be difficult to identify, and it was not expected to meet the same professional standards as external high-stakes testing.

Researchers' increased interest in a more elaborate conceptualisation of classroom-based assessment prompted Davison and Leung to define what the latter required from teachers, proposing that it as "a more teacher-mediated, context-based, classroom-embedded assessment practice, which is in opposition to traditional, externally set and assessed large scale formal examinations, used primarily for selection and/or accountability purposes (2009: p. 395). Davison and Leung suggested a number of important characteristics that teachers pursuing classroom-based assessment should be skilled at, such as (*Figure 1.*)

– modifying teaching and learning goals of the particular class and students being assessed;
– involving students more actively in the assessment process, especially if self and peer assessment is used in conjunction with teacher assessment;
– giving immediate and constructive feedback to students;
– continuous evaluation and adjustment of the teaching and learning programme.

This form of formative assessment is meant to complement other forms of assessment, including external examinations. Furthermore, it has been proposed by many that even summative assessments of the students' language skills could be used formatively in classroom-based assessment to give constructive student feedback and improve learning.

Figure 1. A Framework for Teacher-Based Assessment (Davison, 2008 as cited in Davison and Leung, 2009)
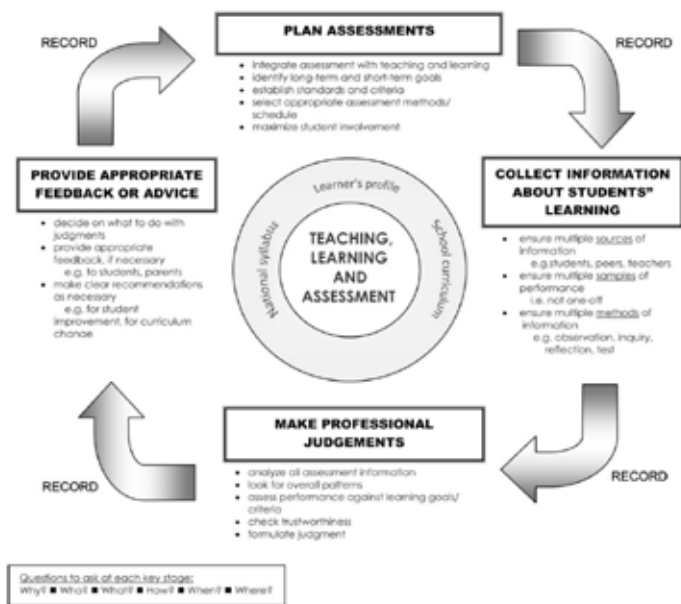
Formative assessment as presented above seems to challenge classroom teachers in terms of their ability to create learning environments where students and teachers are both active assessors. The view of the learner as an assessor for him- or herself and others is in contrast to traditional perceptions of who should act as an assessor in the language classroom, which suggests that teacher education programmes should put special emphasis on changing pre- or in-service teachers' existing views. According to Scarino (2013, p. 309), teachers' LAL is shaped by the "preconceptions, beliefs, understandings and world-views about assessment that teacher-assessors bring to teacher professional learning programs and that inform their conceptualizations, interpretations, judgments and decisions in assessment." As will be shown below, this can play a crucial role in the training and can impose limitations on the intended outcomes.

THE ROLE OF FEEDBACK

The importance of feedback has already been underscored by Davison and Leung (2009, see Figure 1 above). Previously, Black and Wiliam (1998) found that the giving of marks and the grading function were overemphasized, while the giving of useful advice and the learning function were underemphasized. They argued that student comparison was harmful as it strengthens competition rather than personal involvement in learning. Thus, they concluded that "assessment feedback [i.e. grades] teaches low-achieving pupils that they lack "ability", causing them to come to believe that they are not able to learn" (ibid. p. 4). Instead of giving students rewards in the form of grades, they should be encouraged to

look for ways to improve their learning rather than how to climb higher in the class ranking. The teacher's job is to facilitate students' journey by giving them feedback that will guide them further on the way to achieve their learning goals.

According to Nicol and Macfarlane-Dick (2006, p.7), good feedback practice includes the following aspects: It
– helps clarify what good performance is (goals, criteria, expected standards);
– facilitates the development of self-assessment (reflection) in learning;
– delivers high quality information to students about their learning;
– encourages teacher and peer dialogue around learning;
– encourages positive motivational beliefs and self-esteem;
– provides opportunities to close the gap between current and desired performance;
– provides information to teachers that can be used to help shape teaching.

When closely examining these guidelines, one cannot fail to notice that most of the recommendations relate to general pedagogical rather than specific assessment principles. This collaborative and interaction-based view of assessment feedback actually reassigns the place of classroom-based assessment by placing it in between teaching and learning as a kind of bridge to link the two. Without meaningful, constructive and motivating feedback students may not be clear about where they are in their learning and how they can reach their targets.

As was claimed above, students need motivating feedback to boost their learning, and a special assessment form for this can be portfolio assessment. Brown and Hudson (2012, p. 664) list several advantages of using portfolios, but only those will be mentioned here that have direct relevance for enhancing assessment for learning:
– fostering student-teacher and student-student collaboration and partnership;
– encouraging students to learn the metalanguage necessary for students and teachers to talk about language growth;
– permitting the assessment of the multiple dimensions of language learning (including processes, responses, and activities);
– increasing the variety of information collected on students.

These benefits are not readily available in assessment of learning as it is too heavily teacher-centred, giving the teacher sole responsibility for the content selection and administration of tests as well as evaluation of students' achievement. The complementary nature of assessment for and of learning has to be acknowledged, helping teachers to incorporate both types of assessment in their daily work.

THE HUNGARIAN CONTEXT

Hungary appears to have a traditional examination-dominated culture, where foreign language certificates have a high currency. For instance, applicants for admission to higher education can earn bonus points if they have a state accredited language certificate, specified as B2 or C1 level of the Common European Framework, but for students graduating from tertiary education the B2 level state accredited language certificate is part of their study requirements. In the public education sector, target attainments in foreign languages are also clearly defined and measured in the school-leaving exams. All secondary students must pass at least the lower level (A2-B1) school-leaving examination in one foreign lan-

guage. As a result, teacher education requirements, as prescribed by a government decree, also include a specific focus on training teachers in language assessment.

The training of English teachers has been conducted in the framework of MA programmes since 2009. According to the 15/2006 (IV.3) Government Decree (Az alap- és mesterképzési szakok képzési és kimeneti követelményeiről), participants of teacher training MA programmes must acquire competence/ knowledge in the following areas:
– designing classroom assessment tools
– assessing students' progress and achievement using a variety of tools,
– fostering students' self-assessment skill
– interpreting and using the results of the assessment
– test development: item writing, moderation, piloting, item banking
– qualities of good tests: validity and reliability
– state accredited language exams
– the requirements of the two-level school-leaving examination
– the Common European Framework of Reference

The requirements seem to be biased for assessment of learning, although students' self-assessment skills represent an element of assessment for learning.

Altogether there are ten MA in English teacher training programmes currently running in Hungary. Since the above requirements apply to all of them, the structure of their training programme must include elements that cover language assessment with respect to at least the topics mentioned in the Government Decree. However, as was shown by Csépes (2014), out of the ten MA programmes, four do not have a separate course on language testing, which does not necessarily mean that language assessment issues are not dealt with on the given programme at all. The remaining six institutions offer separate courses in the form of seminars, with the exception of one, where a lecture format is offered. Although a lecture course can cover a potentially wide area of topics, developing expertise in testing is something that requires a lot of hands-on experience (Alderson 1999, Brown and Bailey 2007).

With the introduction of a new, unified teacher education programme (5+1-year and 4+1-year) in 2013, the qualification requirements in the area of language assessment have been updated and expanded somewhat to be more in line with current thinking about the role of assessment in the classroom. According to the 8/2013. (I.30.) Government Decree (A tanári felkészítés közös követelményeiről és az egyes tanárszakok képzési és kimeneti követelményeiről), there are additional competency areas that participants of the new teacher training programmes must be trained at:
– the ability to assess students in the classroom in a motivating way;
– familiarity with and the ability to use various forms of continuous / diagnostic / formative assessment (e.g. teacher's feedback, portfolio assessment, self-assessment);
– ability to evaluate learners' language development based on their individual needs, using a criterion-referenced assessment approach.

From the above list, it may be concluded that some content revision may be necessary in the case of those language testing courses that are on offer at the moment in English teacher training MAs, which will be phased out gradually by 2018/2019.

The reason why in some English teacher MA programmes in Hungary trainees have minimal if any chance to familiarise themselves with language assessment issues should also be considered. Since the training requirements must be met by all qualification pro-

viders, they can account for the lack of extensive hands-on training in language assessment, for instance, by not having appropriately qualified instructors to run such courses. However, even where there is qualified staff available to teach a language testing course, the instructor's expertise in language assessment will considerably influence how the course is shaped. Jeong (2013), for example, found that in her context (South Korea) there were significant differences in the content of the courses depending on the instructors' background, especially with respect to test specifications, test theory, basic statistics, and classroom assessment. Because of the assumed impact of the instructor's background on the course content, it is not surprising that a comparison of language testing course syllabi of the English teacher training MA programmes in Hungary has revealed major differences in spite of the common requirements (Csépes, 2014). But more importantly, the question arises to what extent these individual conceptualisations match the most recent and relevant conceptualisation of LAL outlined above. Csépes (ibid.) found that among all the testing courses offered there were only two, where alternative forms of assessment, including continuous assessment, portfolio, self- and peer-assessment, were discussed at all.

CURRICULUM REQUIREMENTS VS. ENGLISH TEACHERS' NEEDS

When the teacher training seems to cover adequately all the relevant skill areas of the qualification requirements in language assessment, including a detailed discussion of assessment for learning, teachers' willingness to implement what they have learnt seems to be problematic. This was investigated in a survey, which was designed to explore how useful participants found the language testing course as part of their training at the University of Debrecen. The respondents were students who graduated from the English teacher training MA programme between 2011 and 2014. Altogether 54 respondents (37,5% of all the graduates of the programme) completed the questionnaire. The question whether the course had met its aims, i.e. participants felt suitably confident in their role as assessors in the language classroom, was investigated in the form of statements that the respondents had to rate in terms of how strongly they agreed with them on a five-point scale. The statements were the following:

1. Assessment has a profound influence on the motivation and self-esteem of students.
2. I understand the standards of appropriate assessment tasks in my context.
3. I use a variety of assessment methods to gather evidence of student learning.
4. I can select appropriate assessment tasks for my students.
5. I can create appropriate assessment tasks for my students.
6. I can provide appropriate feedback to students to help them improve.
7. I can analyze test data and make good inferences from the data gathered.
8. I can use the assessment information in my teaching to help students improve.
9. I involve students in the assessment process (e.g. self and peer assessment).
10. I can use classroom assessment to build students' confidence.
11. I use alternative (portfolio) assessment.

The overall picture (*Table 1.*) turned out to be very positive, showing a high level of confidence except for statement 7, 9 and 11, where a middling level of agreement could be observed. It seems that respondents had a less favourable perception of self- and peer assessment (9) than that of other knowledge and skill areas in language assessment. The use

of alternative (portfolio) assessment (11) received the least favourable response because the mean score (2,65) was the lowest, and the responses showed the greatest variation (SD is the highest). This finding seems to reinforce the idea that there are some unidentified forces at work because of which teachers feel constrained to put the aforementioned elements of assessment for learning in practice. However, it was also clear the respondents were very much in favour of the idea of assessment for learning (in the form of self- and peer assessment, portfolio assessment) as this topic was ranked second among all the course topics for usefulness. At best, it is assumed that the training should be expanded to include more examples of portfolio assessment and more discussion of how to model and teach the skills of self- and peer assessment, guiding students in developing internal feedback or self-monitoring mechanisms to validate and question their own thinking, and providing regular and challenging opportunities to practise, so that students can become competent assessors (Earl & Katz, 2006). However, external factors such as school culture, teachers' workload and learners' motivation for language learning may also play an important (and probably unfavourable) role in teachers' attitudes towards the use of alternative forms of assessment in their own classes.

Table 1. Respondents' Perceptions of their Knowledge and Skills in Assessment.

Statements (see above)	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
1.	54	2	3	5	4,31	,639	,408
2.	53	2	3	5	4,32	,644	,414
3.	53	3	2	5	3,92	,874	,763
4.	54	2	3	5	4,24	,671	,450
5.	54	2	3	5	4,00	,727	,528
6.	54	2	3	5	4,39	,596	,355
7.	54	4	1	5	3,61	,899	,808
8.	53	3	2	5	4,11	,913	,833
9.	53	4	1	5	3,75	1,036	1,073
10.	52	4	1	5	4,00	,907	,824
11.	52	4	1	5	2,65	1,385	1,917

The study was also aimed at investigating what further training needs respondents could identify for their own professional development, especially in the light of their daily practice. The majority (42) of the 54 respondents were willing to articulate their perceived needs, and without exception they called for more training in practical aspects of language assessment. However, elements that could be linked to assessment for learning were very scarcely mentioned. Only two respondents expressed their interest in learning more about portfolio assessment. Table 2 gives a summary of the perceived training needs of the English teachers asked in the study.

Table 2. Respondents' Perceptions of their Needs for Further Training in Assessment.

Recommendations (in a decreasing frequency order)	No. of respondents (out of 42)
1. more practice in designing assessment tasks in general	22
2. assessing speaking	6
3. trainees should evaluate their own tests	5
4. assessing writing	4
5. analysing test item statistics	4
6. assessing young learners	2
7. portfolio assessment	2
8. assessing vocabulary and grammar	2
9. assessing the school leaving exam	2
10. understanding the CEFR levels	1

As can be seen above, half of all the comments requested more practice in designing assessment tasks in general. In some cases, even practical ideas for implementation were provided, such as "Students should create/make own tests and discuss their own tests during the course. They could gather experiences and ideas from each other. They should 'try out' these tests and decide whether they are appropriate for the set aims." The validation and piloting of teachers' self-made test was also explicitly stated by 5 respondents.

Another immediate concern for professional development appears to be assessor training for the productive skills, which can be explained by the fact that in the public school system in Hungary, the school-leaving examination (Érettségi) in English at intermediate level expects classroom teachers to do the assessor's job for both speaking and writing skills. Unfortunately, over the last 10 years, ever since the current examination system was launched, educational policy makers have failed to provide continuous training opportunities for all the English teachers involved in the given high-stakes examination. One respondent specifically asked for "more information about Érettségi exam, designing its exercises and assessing real students". Without doubt, many teachers, probably those belonging to the younger generation, are left to their own devices to tackle this job and do their best as assessors and interlocutors without receiving adequate training. Their perceived need is fully justifiable, and their comments underscore the importance of interlocutor and assessor training, which should be provided centrally by the authorities:

– I found assessing the video-taped lessons especially useful. They were the most effective for me because I could see how the theories can work in practice.

– When watching video recordings of oral language exams, I could learn a lot from the evaluation of the interlocutors' behaviour.

The understanding of the levels of the Common European Framework of Reference (CEFR) is part of the qualification requirements of the English teacher training MAs and so more discussion of the descriptors and helping teachers to internalise them is again a

fair demand on their part. One of the respondents noted that "It is really hard to judge whether a task is for B1 level students or for others. I know that in order to get the level the test should be taken by language learners but it would be good to improve this 'judging ability'." Since the CEFR is used as a central document that guides the National Core Curriculum for foreign language attainments as well as provides the target proficiency levels for the school-leaving examination in all foreign languages, teachers' familiarity with the level descriptors and their ability to interpret language learners' performances in relation to those are essential requirements for their jobs.

CONCLUSION

In this paper, I have examined the most recent conceptualisation of Language Assessment Literacy (LAL) for the classroom teacher, and related it to the curricular requirements of English teacher training in Hungary. On the one hand, it was shown that English language teachers' ability to make assessment of learning is the most important qualification requirement in the area of assessment. However, as a result of the reintroduction of the unified, 5+1 and 4+1-year teacher education programme in Hungary, new competency areas were added that represent a shift towards assessment for learning. On the other hand, when comparing the language assessment content of various English teacher training programmes in Hungary, it was found that would-be teachers of English, depending on the institution of higher education they study at, may be exposed to widely different training in language assessment, ranging from minimal to substantial in its scope and coverage. This finding is already a serious cause for concern, especially from the point of view of qualification providers.

When examining the perceptions of those graduates, who had received a good introduction to language testing and assessment with an increased focus on practical training that highlighted assessment of as well as for learning, it was found that after graduation the training needs of the English teachers asked still called for further practical training in such aspects that belong to assessment of learning, for instance, test task design and assessing students' oral and written performances rather than more training in assessment for learning, such as giving diagnostic feedback or student self- and peer assessment. I suggest that the preconceptions and beliefs that the respondents hold about the role and forms of assessment they are most familiar with as former language learners are ingrained in their minds so deeply that alternative forms of assessment remain for them only a nice idea. Furthermore, there may be external pressure from various levels of the school environment (e.g. colleagues and the management) that prompts teachers to focus on solely assessment of learning and thus they give up their initial enthusiasm to include assessment for learning in their classroom routine. Clearly, further research is needed to verify these assumptions, but it has been revealed even in this small-scale study that there are some, yet unidentified variables that impose limitations on the intended outcomes of teacher education.

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THE EFFECT OF AN EXPERIMENTAL PROGRAMME ON THE DEVELOPMNET OF PRIMARY SCHOOL CHILDRENS'S PROBLEM-SOLVING PROCESS IN SCIENCE

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ABSTRACT

Problem-solving is an important aspect of the developmnet of a person. According to PISA measurement (2000–2012) the hungarian students aged 15 are weak at the science problem-solving achievement. Therefore we investigated this skill from primary level. One of the goals in the investigation of the development of the problem-solving process of school starters in science subjects was to develop a method of evaluation which can help us gain detailed information about changes occurring in a given grade as well as about the levels of development attained in the process of solution. A further goal of our investigation was to study the changes in the problem-solving process in the various grades. The"Rostock Model" development programme is the result of international cooperation between Lithuania, Hungary and Germany. These countries investigated the development of the conceptual system and thinking of school starters in science subjects between 2004 and 2008, within the framework of an organized educational project. The same learners from grade one through grade four from the above three countries were involved in the follow-up investigation. To find out, we created three types of changes and several subtypes within them. This changes were assessment with k-Related sample test. The relative frequency of learners who reached the highest level of development measured in our investigation was observed in grade four. We concluded that most learners reached the highest level in one or two stages and that there were more learners in the other categories, too, in the experimental group compared with the control group. We attributed this difference to the effect of the didactic programme.

INSTRUCTION

Developing problem-solving in science subjects has always been a central task of science education. It is a principle which needs to be taught as early as the lower grades of primary school so that our learners can later become more experienced problem solvers.

Our study of the development of problem-solving is based on a study by Aravena and Caamano (2007), who, in explicitly developing the mathematics problem-solving of 9 -11 year-old school children, measured the extent to which the various elements of Polya's model (1957) appeared in the solution of the tasks. During the study the children performed two different sets of mathematical tasks before and after the experimental teaching, which, however, were identical in terms of the structure of the solution of the task (they tested the understanding, planning, implementation and evaluation phases of problem solving). Comparison of the results of the pre- and posttests revealed patterns of development of the various stages of the problem-solving process. The study showed that

for the 9-11 year-olds the most difficult task was, even after the development teaching, to understand and represent the problem while they reached the best results in the number of solution plans.

The effect of the didactic programme „The Rostock Model" on the leaners' conceptual development was measured using the grouping methods of Schneider and Oberlander (2008) and Glaser (2005), whereby the children were grouped into different categories of development based on the differences in their performances in the pre- and posttests:

– Concept building: concepts are formed without any precursors;

– Concept shift: everyday concepts are replaced by scientific concepts;

– Concept addition:

    a) Everyday concepts are accompanied by everyday concepts of a different structure or science-oriented concepts.

    b) Science-oriented concepts are accompanied by concepts of a different scientific orientation and structure.

    c) Science-oriented concepts are complemented with everyday concepts.

– Concept retention: there is no change in the starting concepts irrespective of whether we are dealing with everyday or science-oriented concepts.

– Concept contraction: a change that starts out from two concepts and moves towards one united notion.

– Concept rejection: discarding an already existing concept without creating an equivalent concept to replace it.

This categorisation is an evaluation method that can be used in all cases where there are at least two or more data available concerning the change in the factor to be investigated. If this factor is a stage of the problem-solving process, about the level of development of which we have three subsequent data, we can use a method of categorisation like this to describe its development. In our study this method was used to describe the development in the various stages of the problem-solving process.

AIM AND QUESTIONS OF THE STUDY

The primary aim of the study was to devise an evaluation method which can provide us with information about the development of our learners' problem-solving process. This body of information can serve as feedback for the teacher on the developmental characteristics and abilities of the individual learners as well as enable teachers to draw conclusions about the efficiency of the teaching and learning methods applied. This information can be informative for both the parents about their children's current level of development and the children about the level of their own knowledge.An additional aim of our study was to evaluate the developmental characteristics of the children involved in the study, which are addressed by the study's two research questions: 1) What is the learners' distribution across the types of changes characteristic of the problem-solving process in the various grades? 2) What is the extent of the effect of the "'Rostock Model" didactic programme on the development of the learners' problem-solving process? 3) What differences can be detected in the development of the children's problem-solving process in science subjects in the various grades? 4)What is the ratio of the learners who, by the end of the programme, reach the highest levels of the various stages investigated as a function of age and the effect of the didactic programme?

SAMPLE OF INVESTIGATION

The same learners took part in the investigation from grade one through grade four, still, the numbers of learners examined in the various grades were not the same. There were three testst (pretest, first and second posttests) performed in this investigation and the development of only those children who did all three tests could be evaluated in it. The composition of the sample for the investigation to measure development is shown in Tables 1 and 2.

Table 1. Distribution of the study sample in the investigation measuring development.

Grade	Group	Budapest (learners)	Debrecen (learners)	Rostock (learners)	Total
1.	experimental	29	25	25	79
	control	22	20	31	73
2.	experimental	25	26	23	73
	control	23	15	25	63
3.	experimental	27	24	22	73
	control	22	17	30	69
4.	experimental	25	25	23	73
	control	23	14	29	66

Table 2. Distribution of the study sample by sex in the investigation measuring development.

Grade	Group	Boys	Girls
1.	experimental	40	39
	control	33	40
2.	experimental	35	38
	control	33	30
3.	experimental	36	37
	control	35	34
4.	experimental	38	35
	control	32	34

METHOD OF RESEARCH

The"Rostock Model" development programme is the result of international cooperation between Lithuania, Hungary and Germany. These countries investigated the development of the conceptual system and thinking of school starters in science subjects between 2004 and 2008, within the framework of an organized educational project. The same 94 learners from grade one through grade four from the above three countries were involved in the follow-up investigation.

The structuring, planning, implementation and analysis of the learning process, which represent the central tasks of the programme, are based on cognitive and construc-

tive pedagogical-psychological as well as neurobiological principles with due consideration of the characteristics of scientific cognition.

The basic goal of the programme is to create a learning context which is characterised by the following: (1) It takes children's previous knowledge and abilities into consideration. (2) It builds on motivational and emotional factors in the learning process. (3) It aims for learning with understanding. (4) It regards learning as a social and cooperative process. (5) By applying the methods of scientific cognition, it develops conceptual thinking in science. 6) As a result of the didactic approaches used, it leads to applicable knowledge. (7) In the course of acquisition of knowledge in the natural sciences, it aims to create and develop abilities that are transferable to other fields as well. (8) Building on previous didactic concepts, it aims to develop and implement a teaching programme in the natural sciences that secures greater independent learner activity than before.

In terms of its structure the programme consists of the following elements. (1) Preparing detailed syllabuses for the experimental teaching which treated a unified knowledge system (with the theme „water") irrespective of national characteristics. (2) Teaching of the experimental classes (8-10 classes/year). (3) Having the children write the pre- and post-tests (in relation to the experimental teaching) that served to test efficiency (the first post-test taking place immediately after the teaching while the second, to measure sustained knowledge, occurred four months after the teaching.) (4) Evaluating the learners' answers. (5) Preparing didactic teaching materials to summarize the programme's theoretical and practical ramifications and main points.

Raising the learners' awareness to the problem-solving process and the application of the various strategic steps was performed in a direct and explicit manner. In the lessons that made up the particular teaching units the children discussed the purpose of acquiring knowledge and the central message of the lessons. Throughout the time of the teaching units, these goals and tasks were on display in the classrooms in a written form and as drawings, allowing the children to study them whenever they liked. In this way we were consciously shaping the children's ability to determine goals. The learning process was helped by the learners' free experiments guided by the teachers' demonstrations and instructions, during which the children wrote „minutes". The structure of the minutes was consistent in that they always contained the following questions: „"What is going to happen? We suspect that…" – to urge the children to form a hypothesis, „What did we observe?" We can see that…" – to help record observations and experience, and „Why did this happen? We know that…"- to evaluate what they have observed. In each case, the minutes were pre-made worksheets which also contained descriptions about the planning and implementation of an experiment.

Evaluation covered four main fields: (1) Development of the conceptual system in science subjects at the knowledge level. (2) Use and application of the conceptual system in the explanation of phenomena in science subjects (3) Characteristics and development of the inner structure of science concepts. (4) Appearance, characteristics and changes of the problem-solving strategies in solving science problems.

To investigate the strategic elements, two problem-solving tasks were devised. (Task 1: „Rexi, our dog, lives in a kennel in the garden. On a cold winter day the dog's water bowl freezes over. How would you help him?" 2: „It is winter, freezing cold. The lake has frozen over. On its surface there is more and more litter, including paper soiled with oil and paint and bottles left behind by careless people. The freezing temperatures are later followed by

sunny, warmer weather. What is the problem? How would you solve it?") The number of these tasks was judged to be satisfactory due to the number of the elements being investigated. The possible solution routes of the two tasks were investigated immediately before the experimental teaching in grade four, immediately after the experimental teaching, in the middle of June, and four months later, at the end of October.

The individual interview was chosen as the instrument for the investigation. During the individual interview the learners' thoughts were recorded on a tape recorder and then coded and evaluated. Our choice of the individual interview was motivated by the fact that, given fewer instructions in writing, the learners would have been less likely to discussthe possible approaches they deemed feasible. Our choice of the interview was further supported by the fact that in the course of it learners also use informative expressions, terms, gestures and metacommunicative elements.

Our choice of the strategic elements being investigated was based on Pólya's cognitive problem-solving model (defining and formulating a problem, forming a hypothesis, planning, implementation, evaluation, and checking) although we hypothesized that not every step of the model would be easily detectable in the thinking of the investigated age group. We added target identification to the model given the fact that the experimental programme placed great emphasis on this element. When examining the learners' hypothesis formation, we analysed whether they were capable of carrying out this operation and if they were, what hypotheses they could form regarding the outcome. We followed the same procedure when examining the stage of planning, adding the aspect of whether the learners were able to explain their ideas in full or in part only.

With regard to evaluating how conscious learners were in formulating a problem and the goal of the solution, the subcategories direct and indirect were created. We regarded the children's goal setting as direct when their ideas contained the following clauses: „My goal is to…; By this I wish to achieve…", etc. This does not mean that a child who did not use such clauses or expressions did not know why a particular problem needed to be solved. Thus the word "conscious" here pertains to the way ideas are expressed linguistically. We followed the same categorisation in the stage of problem identification.

In order to evaluate to what extent learners use previously learnt natural science concepts and whether they express their ideas in scientific or everyday language, further subcategories were created (*Table 3*).

Table 3. Strategic stages of the problem-solving process investigated and their characteristic features

Stages of the problem-solving strategy	Characteristics of the stages		
goal setting	direct		scientific language
			everyday language
	indirect		scientific language
			everyday language
problem identification	direct		scientific language
			everyday language
	indirect		scientific language
			everyday language
hypothesis formation	ability		scientific language
			everyday language
	quantitative indicators		scientific language
			everyday language
planning, implementation	partial	ability	scientific language
			everyday language
		quantitative indicators	scientific language
			everyday language
	full	ability	scientific language
			everyday language
		quantitative indicators	scientific language
			everyday language
evaluation			scientific language
			everyday language

To assess development, the following categories were created (*Table 4*):

Table 4. Types of the changes occurring in the stages of the problem-solving process.

Type of change	Sub-types of change	Levels of sub-types of change	Notation of levels
Stagnation		Level 0	$0 \to 0 \to 0$
		Level 1	$a \to b \to c$
		Level 2	$A \to B \to C$
Progression	Temporary	Level 0	$0 \uparrow b \downarrow 0$
		Level 1	$a \uparrow B \downarrow c$
		Level 2	$0 \uparrow B \downarrow 0$
	Sustained	Level 0	$0 \uparrow b \to c$
		Level 1	$a \uparrow B \to C$
		Level 2	$0 \uparrow B \to C$
	Delayed	Level 0	$0 \to 0 \uparrow c$
		Level 1	$a \to b \uparrow C$
		Level 2	$0 \to 0 \uparrow C$
	Continuous		$0 \uparrow b \uparrow C$
	Progression with temporary regression		$a \downarrow 0 \uparrow C$
	Reductive progression		$0 \uparrow B \downarrow c$
Regression	Temporary	Level 0	$a \downarrow 0 \uparrow c$
		Level 1	$A \downarrow b \uparrow C$
		Level 2	$A \downarrow 0 \uparrow C$
	Sustained	Level 0	$a \downarrow 0 \to 0$
		Level 1	$A \downarrow B \to C$
		Level 2	$A \downarrow 0 \to 0$
	Delayed	Level 0	$a \to b \downarrow 0$
		Level 1	$A \to B \downarrow c$
		Level 2	$A \to B \downarrow 0$
	Continuous		$A \downarrow b \downarrow 0$
	Regression with temporary progression		$a \uparrow B \downarrow 0$
	Reductive regression		$A \downarrow 0 \uparrow c$

The interpretation of Table 4 is the following: 0: The stage being investigated could not be observed in the learner's solution in the given test; a: in the pretest the stage being investigated could be observed at a lower level (e.g. the learner set the goal but in the indirect (not conscious) dimension.; b: in the first posttest the stage being investigated was present at a lower level of the stage (e.g. planning and implementation were present but not in the detailed dimension); c: in the second posttest the stage being investigated showed a lower mean (e.g. evaluation was present but was not expressed in scientific language); A: in the pretest the stage being investigated showed a higher mean (e.g. goal setting was present in the direct, conscious dimension); B: in the first posttest the stage being investigated showed a higher mean (e.g. planning and implementation were present in the detailed dimension); C: in the second posttest the stage being investigated showed

a higher mean (e.g. evaluation was present expressed in scientific language). Stagnation (no change): whichever level the learner started from, their level of development did not change in the course of the three tests.

− Stagnation level 0: the given stage could not be detected in the learner's solution in any of the tests;

− Stagnation level 1: in the learner's solution the given stage could be detected at a lower level in all three tests;

− Stagnation level 2: in the learner's solution the given stage could be detected at a higher level in all three tests.

Progression (development): the learner showed development during any or all of the three tests.

Temporary development level 0: In the pretest the stage being investigated could not be detected, in the second test the stage being investigated dropped back to a lower dimension and in the third test it returned to the level of the pretest agaIn:

− Temporary development level 1: In the pretest the stage being investigated started from a lower level, entered the higher dimension of the stage being investigated only to return to the level of the pretest in the third test.

− Temporary development level 2: In the pretest the stage being investigated was not observable, in the second test the stage entered a higher dimension, returning to the level of the pretest again in the third test.

− Sustained development: Development occurred between the first and second tests and did not change in the third test.

− Sustained development level 0: the stage being investigated could not be detected in the first pretest. In the second test the learner reached a lower level of the given stage which did not change in the third stage.

− Sustained development level 1: in the pretest the learner started from a lower level of the stage. In the second test the stage reached a higher mean which did not change in the third test.

− Sustained development level 2: the stage being investigated could not be detected in the first pretest. In the second test the learner reached a higher level of the given stage which did not change in the third stage.

− Delayed development: there was no difference between the values of the pretest and the second test, development took place between the second and third tests.

− Delayed development level 0: The stage could not be detected in the pre- and the first posttest, the learner reached a lower level of the stage in the third test.

− Delayed development level 1: in the pretest and the first posttest a lower level dimension of the stage could be detected while in the third test the learner showed a higher level of the stage.

− Delayed development level 2: in the pretest and the first posttest the stage could not be detected and the learner reached a higher level in the third test.

Continuous development: the learner reached ever-increasing levels from one test to another.

Progression with temporary regression: the learner dropped from the lower dimension stage of the pretest to level zero in the second test, reaching a higher level compared with the pretest in the third test.

Reductive progression: in the pretest the stage could not be detected. The second test

showed a higher level dimension of the given stage, which dropped to a lower level of the stage in the third test.

Regression: after a temporary drop, the level of the third test equalled that of the pretest or reached a lower level compared with the pretest.

Temporary regression: in the third test the learner returned to the level of the pretest. Temporary regression level 0: in the pretest a lower level of the stage could be detected, which dropped back to level zero in the second test and showed the level of the pretest again in the third test.

– Temporary regression level 1: the pretest showed a higher level of the stage which dropped to a lower level in the second test, and the third test showed the level of the pretest agaIn:

– Temporary regression level 2: in the pretest a higher level of the stage could be measured, which dropped to level zero in the second test and showed the level of the pretest again in the third test.

– Sustained regression: regression occurred between the first and second tests and it did not change between the second and the third tests.

– Sustained regression level 0: regression to level zero occurred in the second and third tests compared with the lower level of the stage in the pretest.

– Sustained regression level 1: regression to a lower level occurred in the second and third tests compared with the higher level of the stage in the pretest.

– Sustained regression level 2: regression to level zero occurred in the second and third tests compared with the higher level of the stage in the pretest.

Delayed regression: the stage levels in the pretest and the first posttest were identical, and regression occurred in the third test.

– Delayed regression level 0: in the pretest and the first posttest a lower level of the stage could be observed and in the third test the learner dropped to level zero.

– Delayed regression level 1: in the pretest and the first posttest a higher level of the stage could be observed and in the third test the learner dropped to a lower level.

– Delayed regression level 2: in the pretest and the first posttest a higher level of the stage could be observed and in the third test the learner dropped back to level zero.

Continuous regression: continuous regression could be observed from the first through the third test.

Regression with temporary progression: starting from a lower level of the stage in the pretest, the second test saw a higher level dimension of the stage, which dropped back to level zero in the third test.

Reductive regression: starting from a higher level of the stage in the pretest, no stage was present in the second test while in the third test the stage reached a lower level compared with the pretest value

Based on their performance on the three tests, every pupil was classified into categories. The investigation was carried out in each grade using both tasks applied in the interview. In agreement with the investigation questions, the evaluation examined the distribution of the learners in the categories of stagnation, progression, and regression following the summary of the subtypes of the changes in the given grade. The summarised evaluation of these three categories was performed in both the experimental and the control groups but there was no task-based evaluation. The rationale behind this choice was that if a learner demonstrated any of the subtypes of development in either (or both

or neither) task, we regarded that he/she was able to reach a higher level in the particular stage, thus there was development in his/her case. If a learner stayed at the same level of development in both tasks and in all three tests or showed stagnation in one task and regression in the other, it was regarded as stagnation whereas dropping back in both tasks was considered regression.

Learners' distribution measured in each grade in the stagnation, progression, and regression categories was evaluated by comparing the experimental and the control groups. In the given grade comparison of the relative frequency in the categories in the experimental and control groups was done using independent t-test. To test distribution across the categories in the groups within the grades as well as distribution of the categories within the groups SPSS Cochran Q- test was used. Distribution of the learners (Hungarian and German) by nationality and by sex was also investigated. In comparing the participating countries we only examined the experimental group in the progression category because, here, too, we were trying to find an answer to the question how the effect of the didactic programme was influenced by the different characteristics of science teaching in the individual countries. In the investigation by sex we followed the same procedure. For the analysis the options of SPSS Cochran Q- and independent t-test were used. The effect of the didactic programme on the development of the individual stages of the problem-solving process was evaluated using Cohens'd. We calculated Cohens'd effect size by taking the smaller of the means of the two tasks in the pretest in each grade and the larger in the second test to fully cover the entire interval of development.

RESULTS

In the first part of the study we were seeking an answer to the question what learner distribution was like across the different types of the changes characteristic of the problem-solving process in the individual grades as well as to what extent these changes were affected by the „Rostock Model" didactic progrmamme. To this end, we evaluated the distribution of learners into the categories of stagnation, progression, and regression for each year and group (*Table 5*).

In order to prove the differences in the development of the problem-solving process in science subjects in the various grades we examined in which stages the learners in the experimental and control groups of the given grade showed the greatest development. To this end, we compared the relative frequency of the learners in both groups of each grade in the progression category of the stage being investigated. During the comparison, in the stages of hypothesis formation, planning and implementation we considered the ability dimensions only, while dimensions of quantity were not taken into account.

Table 6. Relative frequency of learners in the progression category of the stages of the scientific problem-solving process in the experimental and control groups in the various grades

| Grade	Goal setting		Problem definition		Hypothesis formation		Planning and implementation		Evaluation	
	Experimental	Control	Experimental	Control	Experimental	Control	Experimental	Control	Experimental	Control
1.	0,17	0,16	0,19	0,15	0,13	0,15	0,24	0,21	0,14	0,08
2.	0,20	0,16	0,21	0,17	0,22	0,16	0,16	0,12	0,15	0,13
3.	0,52	0,43	0,53	0,43	0,42	0,27	0,28	0,24	0,17	0,14
4.	0,63	0,40	0,60	0,43	0,41	0,31	0,26	0,07	0,26	0,10

In the experimental and control groups of grade one the relative frequency of the learners in the planning and implementation stages were significantly higher compared with the other stages (planning: CochranQ (3) = 7,806, p = 0,020, implementation: CochranQ (3) = 7,814, p = 0,015). Development of grade one was greatest in this stage. However, there was no significant difference between the relative frequencies of the experimental and control group in the planning and implementation stages or in the other stages. Thus the effect of the didactic programme on the development of the problem-solving process in grade one was, on the whole, negligible.

There was no change in grade two, either, there was no significant difference between the experimental and the control group in terms of the development of the stages in any of the stages. The outstanding stages of planning and implementation in grade one gave way to a considerable decrease in grade two. Performance of the second graders was characterised by stagnation in all stages: the didactic programme did not result in remarkable development in any of the stages.

Grade three saw a significant change in the levels of ability of the learners' problem-solving process. The levels of the abilities of goal setting, problem identification, and hypothesis formation significantly increased (goal setting: CochranQ (3) = 7,357, p = 0,025, problem definition: CochranQ (3) = 7,245, p = 0,04, hypothesis formation: CochranQ (3) = 7,350, p = 0,023) compared with grades one and two both in the experimental and in the control group. This must have been the consequence of the age-related effect, namely that, compared with previous grades, the number of children reaching the stage of formal thinking had grown. The children's development was greatest in these three stages although to a significantly greater extent in the experimental group. This is proof, on the one hand, that the didactic programme had a positive effect on the experimental group in this grade in the stages at hand, and on the other hand, that the methods used to develop the levels of ability demonstrated in the problem-solving process are efficient (make sense) only if the abilities whose development the given methods are meant to target already exist.

The development of grade four in the problem-solving process differs from that of the third graders in that the level of ability of goal setting and problem identification continued to rise in the experimental group.

Figure 1. Relative frequency of learners in the category of progression of the problem-solving process in science subjects in the experimental and control groups in the various grades.
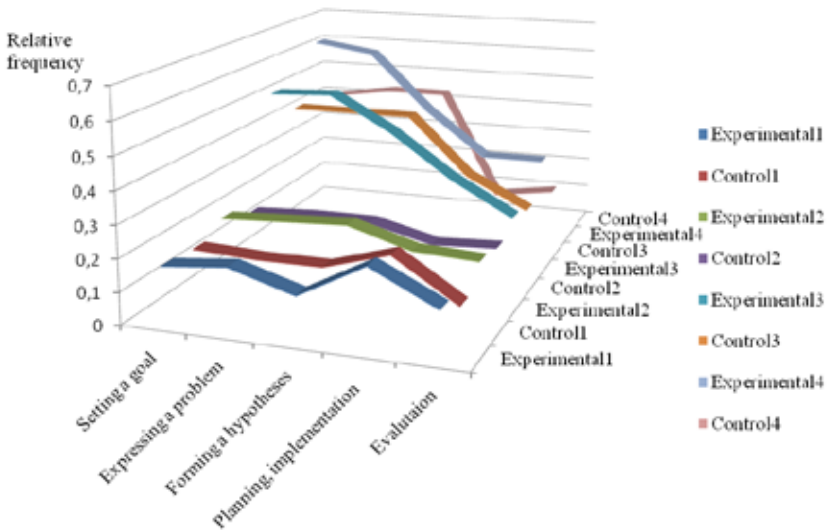
Likewise, there was a significant difference between the development values of the experimental and control groups in the evaluation stage in favour of the experimental group. This means that our fourth-graders were sensitive to the development of the evaluation stage as well. However, compared with the other stages (in the other grades, too), evaluation is still a difficult task for learners of the junior classes of primary school. Considerable regression in grades three and four in the stages of planning and implementation relative to the other stages is difficult to explain even if we know that in these two grades goal setting, problem definition, and hypothesis formation started to develop intensively. In searching for the reasons of this finding we presumed that the reason for this poor performance in the planning stage must lie in the nature of the tasks of the measurement (their level of abstraction and complex content in many cases surpassed the learners' planning abilities).

In order to answer the question what the proportion was of the learners who, as a result of their age and the didactic programme, reached higher levels of the various stages investigated by us towards the end of the programme (direct goal setting expressed in scientific language, direct problem identification expressed in scientific language, hypothesis formation expressed in scientific language, detailed planning and implementation expressed in scientific language, evaluation expressed in scientific language), we examined how many pupils reached these levels in 5, 4, 3, 2 categories or 1 stage in grade four.

Table 7. Relative frequency of learners in the categories representing the highest level of the stages in grade four.

Group	Categories				
	category 5	category 4	category 3	category 2	category 1
Experimental	0,05	0,11	0,28	0,20	0,36
Control	0,01	0,04	0,12	0,41	0,42

In the experimental group 36% of the learners reached the highest level in one stage. Next came the number of those pupils who showed the highest levels in three stages, followed by the groups where the learners reached the highest levels in two, four and five stages, respectively (Table 7). In the control group relative frequency was highest in categories 1 and 2, relative to which the number of pupils reaching the highest levels of abstraction we measured in this investigation in more stages was significantly smaller. Thus the difference between the experimental and control groups was not significant in terms of the numbers in which they reached the highest level of abstraction in the various stages. The majority of the learners in both groups fell in category 1. Considering the learners' age, we can say that there are several children among 9 to 10-year-olds who reach the stage of formal thinking but only few of them actually show the highest levels of abstraction. That comes at a later age. The results of the experimental and control groups also reveal that the didactic programme helped the learners reach higher and higher levels of development in the various stages since the number of pupils who reached higher levels was significantly higher in the experimental than in the control group.

DISCUSSION

One of the goals in the investigation of the development of the problem-solving process of school starters in science subjects was to develop a method of evaluation which can help us gain detailed information about changes occurring in a given grade as well as about the levels of development attained in the process of solution. To find out, we created three types of changes and several subtypes within them. A condition for the use of the method was that the level of the children's development in problem-solving had to be measured on three consecutive occasions. In our experiment, these times were the pretest before the beginning of the actual experimental teaching and the two posttests that followed it. This method can also be used by teachers. Comparison of the results of a test administered at the beginning of a school year, one at the end of a term and one at the end of the year provides them with more exact information about the development of the learners' problem-solving process. These results also provide answers to the questions which stage of development of the problem-solving process is most pressing in a given group of learners, the development of which are the most problematic, and where and how teachers should intervene in the development of the problem-solving process in the classes.

A further goal of our investigation was to study the changes in the problem-solving process in the various grades. To learn about these changes, we examined the following: 1) what is the relative frequency of the learners in the various types of change in the experimental and control groups of the same grade; 2) what differences are there in the distribution of the experimental and control groups of the same grade in the different types of change (verifying the effect of the didactic programme); 3) what differences can be observed between the different grades in the given type of change.

The most important results were the following:
– In grade one, both the experimental and the control group showed the greatest development in the abilities of planning and implementation as well as the quantitative dimensions of hypothesis formation, planning and implementation. The didactic programme itself also had the greatest influence on the development of these stages. Despite the development, the level of development in these stages, with the exception of grade two, lagged behind that of the other grades.
– Grade two was characterised by stagnation. The learners showed strong development only in the quantitative dimensions of hypothesis formation, and planning and implementation. In these dimensions the effect of the didactic programme on development was strong, too. In the rest of the stages the results of the second graders did not differ significantly from those of the first graders.

Grade three saw significant changes. Development was significantly greater in the stages of goal setting, problem identification and hypothesis formation compared with the first two grades. These changes were typical of both the experimental and the control group, which can be attributed to the effect of age. In the stages of goal setting and problem identification a more significant effect of the didactic programme could be observed. In grade four the number of learners who showed development in goal determination and problem definition increased and, compared to previous grades, the stage of evaluation also started to develop greatly. The development of the experimental group surpassed the progression showed by the control group in these stages, which proved the effect of the didactic programme on the development of the stages investigated.

The relative frequency of learners who reached the highest level of development measured in our investigation was observed in grade four. We concluded that most learners reached the highest level in one or two stages and that there were more learners in the other categories, too, in the experimental group compared with the control group. We attributed this difference to the effect of the didactic programme.

The following consequences can be drawn from the results:
Intensive development of the problem-solving process in science subjects can be observed as early as age 8 or 9.
– The majority of the learners who showed intensive development are likely to have reached the stage of formal thinking.
– The majority of the learners capable of formal thinking had not yet reached the level of highest abstraction of problem-solving during the investigation - that would come at a later age.
– A prerequisite for efficient problem-solving is the existence of the components of the ability to be developed. Development of problem solving in science subjects starting from grade one is warranted because first graders (aged 6-7) are capable of making predictions about outcomes. Hence in grades one and two learners should be invited to expand

on their predictions about outcomes. To be able to do this, we need to secure a learning context in which learners feel free to express their opinions and perform a great number of scientific observations and simple experiments. In grades three and four, we can expect our learners to be aware of the purpose of the solution, the identification of the problem and the hypotheses about outcomes as well as the evaluation of the solution, too. In grades three and four we can venture into the field of explicitly developing the problem-solving process.

– The development of the problem-solving process is affected by whether learners possess previous knowledge necessary for the solution and how fresh it is in their mind.

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INTRAPSYCHIC AND SOCIAL CONDITIONINGS OF FEELING EXCLUDED IN A SCHOOL ENVIRONMENT

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ABSTRACT

The idea for the study reported in this paper arose at an international workshop called "Ways of helping teachers to be successful in working with difficult pupils", taking place in Czech Republic, at the University of Plzen, in Oct. 2013. It was organised by the International Group Focused on Research on Adolescents and Family" (IGRAF). Consultations with students and teachers revealed problems of social adaptation of children from small groups (especially minorities). Such a group of pupils include those who have specific problems in learning and who show maladjusted behaviour, including aggressive reactions, withdrawal, shyness, negativistic and unfriendly behaviour.

THEORETICAL BACKGROUND

Results of the study on these pupils' adaptation to school emphasise the significance of demands of schools for effectiveness in child adaptation. The study of the First Step group (Viljaranta et al., 2014) indicated the importance in children of trust in self-ability and readiness for school once they reach school age (Bell, 1968; Brzezińska, 1987; Lerner, 1982). The well-adapted child is able to meet the challenges posed by attending school. This requires a certain level of school abilities, e.g. the ability to read and write, as well as pre-knowledge of a subject, a certain level of emotional and social development, e.g. control of emotions, the ability to work in a group, social activity, and a certain level of conception of one's self (me as a pupil, me as a friend). At each level of education, positive feedback from the teacher regarding learning and positive feedback from peers regarding their acceptance, drive the construction of conception of the self towards being a good pupil and being liked as a friend, all of which condition the psychological wellbeing of the child (Liberska, 2014, Valentine, Du Bois and Cooper, 2004). "Psychological characteristics" of a pupil and a teacher include type of temperament, mode of reaction, experience and personal resources, both cognitive and social (support of family and friends). The authors working in this field have indicated that problems with adaptation to school can be manifested as aggressive behaviour, flowing from an inability to cope with the challenges and expectations of school (e.g. remembrance of anger, fear, lack of self-confidence, sadness, shame) (Henricsson and Rydell, 2004; Kasacova, Karikova, 2014; Łagocka and Farnicka, 2013; Tyszkowa, 1989). Aggressive behaviour can also be a manifestation of psycho-social immaturity and the lack of a mechanism of cognitive control of emotions, which is justified from the point of view of developmental psychology (Liberska and Farnicka, 2013).

THE INVESTIGATED PROBLEM AND RELATED RESEARCH QUESTIONS

The study presented in this paper takes into account selected subjective determinants of child adaptation to school, such as: age, sex, level of anxiety and frame of mind, level of trust in one's own abilities, general level of self-esteem and the variables related to social functioning at school: i.e. the sense of exclusion and the sense of wellbeing, including the sense of support from the peer group and sense of acceptance (Liberska, 2014). The acquired competence and school abilities are manifested not only by marks given by teachers, but also by evaluations made by pupils themselves. The studies by M. Tyszkowa (1990), J.E. Nurmi (2012), V.Kosikova, H. Liberska and M. Farnicka (2014), Barnucz and Fonai (2015) have pointed to the dynamic relations between the above factors. It should be emphasised that the interactions between the above factors take place as a result of child maturation, structuring of the child's experience (Piaget, 1977). The influence of the school environment can dynamically change over time and can significantly modify the process of a child's adaptation to school.

It is assumed that a child's adaptation to school covers two educational goals, i.e. coping with school tasks, measured by the marks given by teachers and correct functioning in social interactions (Sutton and Wheatley, 2003; Farnicka and Liberska, 2014b). Several paths of adaptation have been distinguished: the full paths, encompassing the two educational goals, and incomplete paths, encompassing only one educational goal. It can happen that one of the above paths is disturbed, which prevents realisation of the other paths, e.g. the excluded child begins to miss school activities and is not able to realise any of the educational goals. They indicated the spheres of the education environment in which it is possible to introduce changes aimed at elevating the level of a pupil's adaptation to school and avoiding social exclusion (Farnicka, 2012; Farnicka and Liberska, 2014, 2014a).

The main aim of the study was identification of the determinants of child adaptation to the challenge of school and time changes in these determinants. The general aim of education is a comprehensive development of the pupils. We see the process of exclusion as an improper way to adapt a child to school. They indicated the spheres of the education environment in which it is possible to introduce changes aimed at elevating the level of a pupil's adaptation to school and avoiding social exclusion (see *Figure 1*.).

*Figure 1. Model of features connected with adaptation to school.*

The following research questions were asked.

1.1. Which factors determine a child's adaptation to school and what are the relations between them?

2. Do the relations between the identified determinants of a child's adaptation to school change over time?

3. Is it possible to notice specific paths of a child's adaptation to school?

MODEL OF THE STUDY

It was assumed that adaptation child's adaptation to school is expressed by his/her effectively meeting educational goals. In other words, positive adaptation is manifested by coping with the challenges and expectations of school and coping with the challenges and expectations of the social environment at one's school. A child's ability to cope with the challenges and expectations of one's school was assumed to be measurable by a child's own self-evaluation of the acquired school competences. A child's ability to cope with the challenges and expectations of his/her social environment at school was measured by the child's sense of wellbeing and sense of exclusion. It was assumed that the process of adaptation is affected by certain criteria, such as a child's level of general self-esteem and trust in one's own abilities, level of anxiety and depression. The circular character of the interactions and their temporal changes were assumed (*Fig. 2.*).

Figure2. Model of relations studied variables in time.
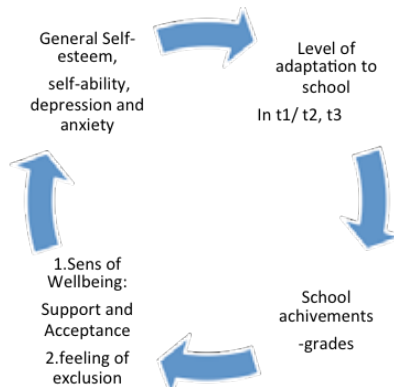
METHODOLOGY OF RESEARCH

PLAN OF STUDY AND STUDY GROUP

The study was realised according to the cohort sequential design. The sample of the present study included 173 pupils (93 girls, 80 boys) aged between 8-11 (in Grades 2 – 5,

covering four age groups of 8, 9, 10 and 11 years old)[1] Two measurements of the variables studied were made in one year, at the end of the first and the second semester. Each age group included from 35 to 47 children (Table 1).

Table 1. The number of pupils in each age group and its distribution according to sex.

GRADE	GRADE II	GRADE III	GRADE IV	GRADE V	SUM
PUPILS (N)	46	47	45	35	
GIRLS (N)	26	21	27	19	90
BOYS (N)	20	26	18	16	80
					173

COURSE OF STUDY

The study was carried out in September and June of 2014, at a primary school. Measurements were made during classes under the supervision of a teacher and an experienced psychologist. To protect the anonymous character of the study, each child was given a code number.

TOOLS

Measurements were made with SPAS, SUPSO and QSL questionnaires.

The SPAS questionnaire by Matějček, Vágnerová (1992) is an adaptation of the SPAS by F.J. Boersm and J.W.Chapman. It focuses on children from grades 2 to 6. The SPAS includes 48 questions which are focused on 6 scales: general self-esteem, math, reading, spelling, writing, and a child's natural abilities. Two scales were used for the measurement of self-esteem and natural abilities.

The SUPSO questionnaire captures and evaluates the structure and the dynamics of subjective experience and conditions (Mikšík, 2004). This questionnaire has a good structure (idea) and focuses on 7 scales of feelings. Two of them are directly focused on anxiety and annoyance and mental depression and feeling of exhaustion, these two scales were used in the studies reported. Evaluation of the child's own psychological state was measured on the scale from 0 to 5, where 0 means never and 5 means always.

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1 The number of children in this group is greater than predicted in the general plan of study to compensate the possible withdrawal of some children from the study for various reasons (migrations, absences and others).

Questionnaire of School Life (QSL, 2014) was applied to measure the sense of wellbeing and feeling of exclusion (Farnicka, at all, 2014), level of peer support and level of educational success. The experimental tool (QSL) consists of 12 questions arranged in three scales: (1) evaluation of oneself as a pupil, (2) sense of social exclusion, (3) sense of wellbeing, the latter scale comprises two subscales of (a) social support i (b) sense of acceptance. The data were collected with the help of six-point Likert scales.

RESULTS OF RESEARCH

The data collected from the pupils from grades II - V revealed a significant change in the level of the variables studied with the age of the children. The results in the form of the mean values of the variables measured in the first term (in September) are given in *Table 2*.

Table 2. Mean values of the variables measured in the first term
(September) for pupils from grades II –V.

Grade	II	III	IV	V	Mean	SD
Evaluation of oneself as a pupil	2.246	**2.667**	2.496	2.524	2.482	.600
Sense of peer support	3.604	4.060	4.036	**4.154**	3.951	.750
Sense of acceptance	3.652	4.100	3.919	**4.124**	3.938	.824
Sense of exclusion	1.471	1.567	1.563	1.591	1.545	.703
Level of anxiety	1.940	2.261	2.167	2.379	2.175	.791
Level of depression	2.169	2.298	2.322	2.386	2.288	.855
Trus Trust in one's own abilities	72	1.685	1.642	1.623	1.658	.249
General self-esteem	1.391	1.383	1.430	1.443	1.409	.292

As follows from comparison of the mean values, the level of evaluation of oneself as a pupil, sense of peer support and sense of acceptance were the lowest in the children from grade II. The level of trust in one's own abilities was the highest in the children from grade III. The highest sense of acceptance and peer support was in the children from grade V. Statistical analysis of evaluation of oneself as a pupil, differences between groups Statistical analysis was performed by ANOVA and Tukey test. The results pointed out a significant difference in this variable between children from grades II and III (df=3, F=4,13, p=0.007).

STATISTICAL ANALYSIS OF THE SENSE OF PEER SUPPORT AND ACCEPTANCE, DIFFERENCES BETWEEN GROUPS

The results of statistical analysis revealed that the children from grade II have low levels of trust in their own abilities and the lowest (from among all groups studied) level of sense of peer support. The difference is statistically significant, (df=3, F=4,985, p=0.02). In the level of sense of acceptance, a significant difference was found between the children from grades II and V (df=3, F= 3.17, p= 0.026).

No statistically significant differences were found between the groups compared in the other variables considered. Statistical analysis of correlation between the level of sense of peer support, sense of acceptance, the level of anxiety and the age of pupils.

Statistical analysis proved statistically significant positive correlations between the level of sense of peer support (r=0.24, p<0.01) and the level of sense of acceptance (r=0.16, p<0.05) and the age of children (level of education). Comparison of the mean values of these variables indicates that with increasing age of pupils (from 8 to 11 years) the sense of wellbeing increased. This result can indicate the normative path of a child's adaptation to school, manifested as increasing level of wellbeing.

A statistically significant correlation was also found between the level of anxiety and age (r= 0.18, p<0.05). Detailed analysis of the data points out that the level of anxiety increases with the children age, from grades II to V, which can indicate the level of anxiety increases with increasing demands from school.

STATISTICAL ANALYSIS OF RELATIONS BETWEEN THE VARIABLES STUDIED

Analysis of correlations showed significant positive correlations between the trust in one's own abilities and sense of peer support (r=0.502 p<0.01), sense of peer acceptance (r=0.251, p<0.01) and level of anxiety (r=0.179, p<0.05) in the whole group studied (Tab. 3). With increasing sense of peer support and acceptance, the evaluation of oneself as a pupil increases, but the level of anxiety also increases. Moreover, there is a significant correlation of the components of wellbeing (the sense of acceptance is positively correlated with the sense of peer support (r=0.788, p<0.01)) and they are negatively correlated with the sense of exclusion (r=-0.395, r= -0.406, respectively, at p<0.01) (Tab. 3). The level of anxiety is positively correlated not only with the age, but also with the sadness (level of depression) (r=0.736, p<0.01) and negatively correlated with the trust in one's own abilities (r=-0.483, p<0.01) (Tab. 3). The level of trust in one's own abilities is negatively correlated with the sadness (level of depression) (r=-0.495, p<0.01), so the stronger the anxiety, the higher the level of depression and the lower the trust in one's own abilities.

Table 3. Correlations between the variables measured

	sex	Grade	Evaluation of oneself as a pupil	Sense of peer support	Sense of acceptance	Sense of exclusion	Level of anxiety	Level of depression	Tru on abil	Trust in one's own abilities
Sense of peer support	.129	**.242**[**]	.502**	1						
Sense of acceptance	.079	**.164**[*]	0.01	**.788**[**]	1					
Sense of exclusion	-.016	.056	-0.04	**-.406**[**]	**-.395**[**]	1				
Level of anxiety	-.007	**.167**[*]	1.79*	.118	.056	-.026	1			
Level of depression	.065	.087	.034	-.016	-.085	.102	**.736**[**]	1		
Trust in one's abilities	-.015	-.081	.401	.00001	.002	-.014	**-.483**[**]	**-.495**[**]	1	
General wellbeing	.089	.075	.062	-.056	-.107	-.037	**.276**[**]	**.294**[**]	-.554**[**]	

*p<0.05 and **p< 0.01

STATISTICAL ANALYSIS OF PREDICTORS OF EVALUATION OF ONE'S SELF AS A PUPIL OVER TIME

The above analyses concerned the inter-cohort changes, i.e. differences between the children from different age groups (grades). In order to get information on changes over time, the measurements of the variables were repeated (t1, t2).

The results of hierarchic analysis of regression ($R^2 = 0.477$, p<0.001) indicate that the evaluation of one's self as a pupil measured at time t2 was significantly affected by the peer support measured at time t1 (beta= -0.252), evaluation of one's self as a pupil at t1 (beta=0.418), peer support at t2 (beta= 0.834) and peer acceptance at t2 (beta= - 0.328). These results mean that the evaluation of one's self as a pupil at t2 is correlated with the peer support at t2 and the evaluation of one's self as a pupil at t1. This result can mean that the earlier experience and earlier educational success is a predictor of later educational success and later peer support at t2 (r=0.834, p<=0.01). The negative correlation between the evaluation of oneself as a pupil at t2 and peer acceptance at t2 (beta = - 0.328) and peer support at t1 (beta=-0,252) indicates that the lower was the sense of support in the past and the higher the evaluation of one's self as a pupil at t1, the higher was the evaluation of one's self as a pupil and the higher the peer support at t2. At t2 the increase in the evaluation of one's self as a pupil was correlated with a decrease in the peer acceptance at t2 (beta= -0.328).

DISCUSSION

The main aim of the study was identification of the determinants of child adaptation to the challenge of school and time changes in these determinants. The general aim of education is a comprehensive development of the pupils. It is assumed that with passing to higher levels of education, the pupil should reach increasing levels of competence and

school abilities, so he/she should reach increasing levels of coping in social situations. An objective indicator of school competence and abilities are the marks given by teachers for written work or oral presentations, while the subjective indicator is the self-evaluation of one's abilities formulated by the pupil (Borko and Putnam, 1996; Calderhead, 1996). The indicators of functioning in a social environment in the interactions with peers, adults, known and unknown persons are (1) the sense of wellbeing (including the sense of acceptance and peer support) and (2) sense of exclusion. It was assumed that the process of adaptation to school is affected by the level of evaluation of oneself as a pupil, trust in one's own abilities and levels of anxiety and depression. The model of relations assumed the mutual interactions between the above variables and the possibility of their changes in time.

Although the data presented in this paper come from the first stage of the study, already these results permitted identification of two key moments in the process of child adaptation to school, between grades II and III and between grades III and V.

The youngest children showed the highest susceptibility to possible disturbance in the process of adaptation to school in social area show, i.e. pupils from grade II. The children of this age (9-11 years) show increasing level of sense of peer support and acceptance, which is positive. However, at the same time, the sense of exclusion increases and the evaluation of one's self as a pupil decreases, which is a negative change. This conclusion is based on the results obtained from these children in all scales measuring the efficiency of adaptation. The 8 year old children show the lowest level of wellbeing, which is an indicator of coping with challenges of school social environment, and the lowest evaluation of one's self as a pupil, which is a subjective measure of success in education. Analysis of psychological features of an 8 year old child, such as the level of anxiety and the level of depression, shows that these two variables are the lowest from among all age groups studied. They can be treated as a kind of initial resources and treated as a basis for the readiness for adaptation to school. Depending on the situational factors related to the work of the teacher and the processes taking place in the classroom and outside school, this readiness can be the basis for effective adaptation to school. As a result of accumulation in the child's mind, structures of e.g. adverse school experience, related to didactic errors or educational neglect, the levels of anxiety and depression can increase and the correct attitude of the child to school can be permanently destroyed. The recognised system of psychological and social factors for children from grade II points to a great role of the teacher in showing children the path of adaptation to school. At this age, children have a low sense of acceptance and peer support, but also a low sense of exclusion. The increase in the two former variables in later years of education can be treated as a result of the good work of the teacher, who stimulates their growth. According to the results, a decrease in the sense of exclusion is accompanied with an increase in the sense of acceptance and peer support, which is a positive development. Such changes over time indicate that the child has taken up the pathway of effective adaptation to challenges related to the social environment. The increase in the evaluation of one's self as a pupil, noted between grades II and III, attests to the positive adaptation of children to school educational demands. In the children from grade III, the overlap of two pathways of adaptation could be observed, (1) adaptation to challenges and tasks related to increasing level of basic school competences (knowledge and abilities) and (2) adaptation to challenges and tasks related to the social environment. The second moment of key importance for adaptation to school takes place between grades III and V. The children of this age (9-11 years) show increasing levels of

sense of peer support and acceptance, which is positive. However, at the same time, the sense of exclusion increases and the evaluation of oneself as a pupil decreases, which is a negative change. These results reveal a certain type of conflict in one of the areas of social adaptation, related to wellbeing, which can be interpreted as progressive narrowing of the area of adaptation. This should be a signal informing teachers that they should pay more attention to the social processes taking place in the class (Liberska and Farnicka, 2014, 2014a). Fast positive solution to the above mentioned conflict is the necessary condition for further effective adaptation in the path of the social development of a child. According to the results, with increasing age from 8 to 11 years, despite an increasing sense of peer support and acceptance, the evaluation of one's self as a pupil decreases and the level of anxiety increases. The level of anxiety is strongly positively correlated with the level of depression (r=0.736, p<0.01) and moderately negatively correlated with the trust in one's own ability (r=-0.483, p<0.01). This indicates the limitations of the process of adaptation in children aged 9-11, the narrowing of the process to one aspect of social development, manifested in the sense of wellbeing. Thus, the children pay high cost for adaptation, manifested as deterioration in emotional functioning and in one aspect of social functioning that is in the sense of exclusion, as well as in the negative changes in evaluation of oneself as a pupil (Deptuła, 2013). At this level, the role of the teacher and her/his activity to integrated children is huge (Farnicka, 2011).

CONCLUSIONS

Increase in the level of anxiety with age and the level of education can bring negative consequences, such as absconding, truancy, dodging strategies of coping with problems, lowering of the level of achievement and others. In an expanded time perspective, the consequences can apply to all spheres of psychosocial development and restrict the possibilities for individual development and the role of the teachers at the first level of education is increased.

The hitherto worked out model of relations in the area explored has been empirically confirmed. At the present stage of studies, it cannot be excluded that the pattern of relations between the established predictors of pathways of adaptation to school will change. These results reveal a certain type of conflict in one of the areas of social adaptation, related to wellbeing, which can be interpreted as progressing narrowing of the area of adaptation. It should be a signal, informing teachers that they should pay more attention to the social processes taking place in the classroom.

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LEVELS OF TEACHER COMPETENCES IN INCLUSIVE EDUCATION ACCORDING TO THE DIALOGUE MODEL – STUDY RESULTS

Danuta Al-Khamisy

ABSTRACT

Observing the trends of changes in the education of pupils with special educational needs in public schools and kindergartens in Poland and throughout the world, the author draws attention to indicators that determine the dynamics and quality of inclusive education. These are mainly competences of teachers, which in addition to the traditional ones, with a range of teaching and education, should be expanded to include new ones on recognizing problems, diagnosis, counseling and therapy. Modern education standards already require a new look at the skills of teachers. The aim of this study was to determine the level of teacher competence base, such as cognitive, interpersonal, organizational and therapeutic competence in inclusive education, considered from the point of view of the author's proposal: the education model of dialogue, consisting of three areas of dialog, i.e. Cognizance, Understanding, Being together.

The analysis of the study clearly confirmed the hypothesis of a highly differentiated and low competence of inclusive education teachers. This also represents a significant barrier in the implementation of educational dialogue criteria in three areas which were examined. Primarily, there is need to prepare teachers to work in a diverse group, which is the class, where able-bodied students learn together with students with intellectual disabilities, ADHD, autism, hearing and visual deficits. Unfortunately, it still dominates the perception of dysfunction, and in the further level treating each human being as a social being. This problem is evidenced by the large numbers of teachers who indicate related educational and didactic difficulties. Still, according to the respondents, the most preferred place of education for students with disabilities are kindergartens in special and integrated schools. It can be assumed that a clear resistance to inclusive education among teachers is the effect of insufficient preparation, but also a perceived lack of support. Teachers expect not only indirect but, above all, direct assistance. They want to work with students with disabilities accompanied by an assisting expert from the field of special education. Therefore, the proposed mainstream of teacher education should be a complementary approach, both in the areas of general education and special education. This trend of teacher education can promote blurred boundary division between special and general education.

INTRODUCTION

Integrative education has been developing in Poland since the1990s. Today, a number of qualified pedagogues specialising in integrative education are being trained, multi-level cooperation is being achieved and a well-organised community developed. However, the

current concept of integrative education in Poland[1] is not sufficient. A new model of education, known as inclusive education, which can be understood as (...) "*the process of joint education of students, with special educational needs with their peers who do not have such needs in publicly available school. Necessary condition for this process to be effective is to provide students with special educational needs with the sense of belonging to the school community as well as psycho-social, didactic, organisational, and technical support what will allow for meeting their special developmental and educational needs stemming from their individual development*" (Głodkowska, 2010, 74).

Education of student with disabilities was included in the European Union's list of priorities. Many important documents defining the directions of the development of the special education were published. Legislative changes in Poland, which try to meet world-wide tendencies, were done in order to meet the disabled children needs[2]. The announcement of those changes, as well as their gradual implementation caused great commotion among teachers. Questions, such as the ones below, arose among teachers: Are we ready for this? Who will prepare us for those changes? How will universities that train teachers react to the changes? All in all, the issue raised great interest among both regular and special pedagogues.

As a result, this paper emphasises teacher's work in kindergartens and primary schools. Therefore, a question arises: What competences should teacher have for an inclusive education to be effective for both disabled and regular students? What kind of person should a teacher in the inclusive education be, in order to meet all the requirements defined in the new regulations about place and time of the psychological–pedagogical support for student with special educational needs? I decided to analyse inclusive education from the point of view of a model which was based on the analysis of subject literature of educational dialogue together with its parameters. The model presented below was created on the provision of selected orientations of studies done over dialogue education, as well as selected concepts of human and factors determining human development.

The effect of the interpreting attempt of the dialogue from the philosophical–pedagogical point of view is the assumption that educational dialogue during the interaction with Other is understood as a way of behaving, co-behaving, or as Buber says embracing and not as an educational method. This way of understanding dialogue provokes to KNOWING self and partners, to UNDERSTANDING self and Others in order to extent educational interactions that take place and to BEING TOGETHER, understood as creating new quality of interactions in practical implementation undertaken actions, which will encourage every student with special educational needs to participate. Results of the studies presented below are limited only to specific competences that define whether teachers are ready for inclusive education or not.

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1 Since 1990, in Poland, there have been both integrative and special schools organised on all levels of education. Integrative pre-school or school group should include 16 to 20 students, 3 to 5 of which should have an opinion on their special educational needs (most often different forms of disabilities). There are two teachers in the class, first, so-called "leading subject teacher" and second - supporting teacher (special pedagogue). School should provide complex psychological–pedagogical and rehabilitative support.

2 Six regulations concerning e.g., the rules of providing psychological-pedagogical support in public kindergartens, schools and education facilities; regulations about conditions and methods of assessment, classification, promotion and examining; rules onthe opinions and giving opinions about students by specialised teams in public PSYCHOLOGICAL–PEDAGOGICAL counselling centres; rules on special conditions of working of public psychological–pedagogical counselling centres, including specialist centres, were changed on 17 November 2010.

Due to the position assumed, studies aimed at measuring kindergarten and primary school teachers competences are aiming not only at defining the real level of competences, but also at setting the direction of their development and organisation in order to fulfil the goals of the inclusive education.

Teachers' level of competences depends, most of all, on the requirements posed on him or her by the school, and on his or her personal experiences. Those experiences depend largely on the legal, systemic, organisational, and cultural constraints. Therefore, **teachers' activity is especially important**. Especially for those teachers who achieved the stage of adaptation in their profession and start to fall into the ‹routine stagnation› stage. Currently, during the process of implementing of new regulations concerning the psychological–pedagogical support for students with Special Educational Needs (SEN), teachers often ask themselves the following questions: What are the expectations about their work, what professional role they should fulfil in modern society, how they can achieve success in their pedagogical efforts, and what should be most important for a teacher – students or national interests? The answers to the questions above provide solutions which require explicit system changes defining the scope of teacher›s responsibilities in a given social, and educational context, as well as competences required for meeting new challenges in universal education. A special role is ascribed to the educational authorities, including governing authorities, and pedagogic supervision authorities, pedagogic universities, teacher training facilities, head teachers of the educational facilities who should define the specific requirements for teachers working in specific conditions and create good model of internal education of the teachers. The teachers themselves should organise self-help, or educate themselves by autodidactic methods and at the same time auto-evaluate themselves, their attitudes, and effects of their work.

Therefore, the question is: what image of a teacher ready for work in the dialogue inclusive education with students with special educational needs should be created by the institutional education system? Most likely, the answer is that it should be the one in which educational programmes and offers should develop the competences of future teachers in the area of so called «sensitivity to the disabilities» (Laicaster, in: Kwieciński, 2000). The system of teacher training, for the dialogue education, should prepare the teacher for fulfilling the roles of the: counsellor, diagnostician, educator, guardian, manager, mentor, therapist, and tutor. All the roles of a teacher are especially suitable fora teacher in the inclusive education.

Regulation on the conditions, assessment methods, classification and promoting students and listeners, and conducting tests and exams in public schools, concerns all schools and educational facilities where students pursue their compulsory education. This regulation also introduces the new definition of specific learning difficulties and defines the time period when student can be given opinion on a specific learning difficulties from the psychological–pedagogical counselling centre; it obliges the teacher to individualise the teaching of such student during obligatory and non-obligatory classes; it obliges the teacher to match the educational requirements with the individual developmental and educational needs and capabilities of the student who is in need of psychological–pedagogical support; it also defines the rules of matching the conditions for conducting the tests and exams to the needs and abilities of the student who is in need of the psychological-pedagogical support; as well as introduces transitional regulation (tasks, rules, and terms).

RESEARCH ASSUMPTIONS

In order to define the preparedness of teachers for inclusive education, including the dialogue requirements, the following research question was formulated: What is the competence level among kindergarten and primary school teachers, required to working in the inclusive education, and defining the scope of the dialogue in form of KNOWING, UNDERSTANDING and BEING TOGETHER?

RESEARCH METHODS AND TOOLS

Due to the diagnostic-exploration-prognostic nature of the study diagnostic survey method was used. For the needs of this study following research techniques were used: Analysis of the legal documents in the form of Ministry of National Education regulations on introducing into the educational practice selected indexes of the inclusive education, and the analysis of the regulations concerning teacher trainings. Interviews with teachers and head teachers from schools and kindergartens, direct and indirect observation of teacher's work during the educational actions with student with special educational needs especially in form of opinion stating the need for special education. The study was done on a sample of 772 persons, who were kindergarten teachers, public school teachers, and persons who were not teachers themselves but who supported teachers, i.e. employees of psychological–pedagogical counselling centres or teacher training facilities. Presented results concern mostly teachers.

Teachers groups studied are: kindergarten teachers, teachers of grades 1 to 3, teachers of grades 4 to 6 (Referred to in the analysis as "teachers of older classes"),

TEACHER COMPETENCE LEVEL IN THE KNOWING AREA OF DIALOGUE, EXPERIENCES AND CONTACTS WITH DISABLED PERSONS

Most of respondents (75%) declared contact with the disabled persons. Educators declared most frequent (43,10%) contact and employees of the counselling centres declared the least frequent contact (10,49%). The results of the study do not provide any statistically important correlation between declared contact with the disabled persons and belonging to any particular professional group . Respondents declared that they have most frequent contact with persons suffering from with intellectual disabilities such as ADHD, cerebral palsy, or autistic disorder. Less frequently, they declared contact with persons suffering from chronic or genetic conditions, or suffering form severe sight of hearing impairments. This may be because children with severe sight or hearing impairment study mostly in schools in large cities. It turns out, that there is a weak but statistically significant correlation between the number of contacts with children with SEN and represented professional group. Most frequent group of children with special educational needs, that the surveyed persons had contact with, were children suffering from ADHD. Kindergarten teachers, primary school teachers, as well as employees of teacher training facilities -all of them had contact with about 20%of such children. Second group of students with SEN, often encountered by kindergarten, and primary school teachers, are children with intellectual

disability. However, employees of the counselling centres not teachers are the ones who had the most contact with those children. This means that both kindergarten and primary school teachers should be well prepared to work with students with special educational needs. The surveyed persons, in both urban and rural environments, had most often contact with students suffering from ADHD or intellectual disabilities. Contact with students with intellectual disabilities is more frequent in the countryside and less frequent in large cities (This result is not surprising, as the access to special or integrative schools in the countryside is very limited). In the city, disabled students have a much wider choice of alternative education. The cases of children suffering from ADHD, it is much different in this respect. Most of those children are present in schools located in small and large cities. Moreover, autistic children (in the countryside 15.91%) and those suffering from Asperger syndrome (in large cities 15.42%) are also important groups of disabled students. The number of students suffering from cerebral palsy is also highest in the countryside and smallest in large cities. The studies clearly show that there is a great need for providing support for teachers in the countryside and in small cities. The presence of disabled students in all social environments as well as in publicly available schools is undeniable fact. The number of the disabled children in publicly available schools varies from 0.8% in large urban agglomeration (Warsaw, Breslau), where there are plenty of integrative and special schools, to 1.5% of total students population in schools located in small towns, where access to integrative and special schools is next to none (Al-Khamisy and Bogucka, 2009). From among the disabled children studying in publicly available schools, the largest percentage has mild intellectual disability (35%) and conduct disorders (10%).

KNOWLEDGE ABOUT SELECTED DEVELOPMENTAL DISORDERS

Knowledge about following developmental disorders was verified among the surveyed persons: intellectual disability, ADHD, Down syndrome, cerebral palsy, autistic disorder, hearing impairment, deafness, weak hearing, sight impairment, blindness, weak sight. It turns out that teachers who teach in grades1 to 3 are knowledgeable about the above mentioned special educational needs, but what is raises concerns is the fact that 23,2% of the teachers in this group declare no knowledge whatsoever about the disorders. Most teachers who teach in grades1 to 3 have the most knowledge about intellectual disability. They ascribe this to the fact that more and more students with this disability appear in publicly available schools. At the same time they declare, the same as other groups, that they have the least knowledge about students with sight impairment. Moreover, the same group of teachers declare large extent of knowledge about ADHD and cerebral palsy. Therefore, this professional group can be treated as well-prepared in terms of the knowledge required for working in the inclusive education. The declared level of knowledge of teachers is favourable for KNOWING area of the dialogue. Surveyed teachers of older classes, i.e. grade 4 to 6 of primary school, similarly to kindergarten teachers, declare, to a large extent (31,6%), lack of any knowledge whatsoever about above mentioned special educational needs . They declare the most knowledge about cerebral palsy, ADHD, and Down syndrome, and the least, same as all other groups, about sight impairment. The results clearly show that there is a need for extending their knowledge in the area of special educational needs. The area of KNOWING in the educational dialogue is very low in this group. Following

conclusions can be drawn from the analysis so-far: All of the surveyed groups are poorly prepared in terms of knowledge about disabilites to the KNOWING area of dialogue. Most likely, this stems from educational practice, which until now did not burdened the teachers with the task of diagnosing and supporting the student with special educational needs. Decisive actions need to be undertaken in order to improve the knowledge about different special educational needs. The actions should be targeted especially at kindergarten and teachers of grades 4 to 6, as well as to all groups in the countryside and in small cities. Studies clearly show that there are significant deficits in the area of didactics of students with hearing and sight impairments.

Young teachers with work experience below one year (60.0%), and those with job experience below 5 years (60.6%), are most often suffering from lack of any knowledge about disabilities. They have the highest level of knowledge about ADHD, which is still relatively low, and lowest about intellectual disability and methods of working with student suffering from it. Surveyed teachers with work experience of above 6 years have the most competences in the area of special educational needs. Experience gathered through teaching allows those professional groups to extend their knowledge about every type of disability; however, they still declare that they have the most knowledge about intellectual disability and ADHD (51.9%) and least about hearing (7.4%) and sight (11.6%) impairment. This knowledge significantly raises among teachers with over 20 years of teaching experience. It can be assumed that there are more and more disabled students in publicly available schools. On the other hand, what raises concerns is the fact that among teachers with over 30 years of experience the number of those who have no knowledge about disabilities raises. At the same time, knowledge about hearing and sight impairments raises in this group at the cost of knowledge about autistic disorders.

The most common form of teacher professional development are courses, workshop, conferences and meetings, with post-graduate studies at the end of the list. Among other forms of development, reading specialist books and articles and contact with specialist facilities are mentioned. Respondents in each age group undertake different forms of professional development, but those with work experience between 10 and 30 years are most active in this respect.

TEACHER COMPETENCES IN THE UNDERSTANDING AREA OF DIALOGUE, DIFFICULT SITUATIONS DURING WORK WITH DISABLED STUDENTS AND REASONS BEHIND THEM

Difficult situations observed by kindergarten and primary school teachers in their work with disabled students were divided into two groups–didactic and pedagogic situations. Situation types studied are: deprivation, overload, conflicts, impediments, threats, and lack of guidelines. From all the respondents 21,8% declare that they have no didactic or pedagogic problems with disabled students. From among the respondents who signal having problems with disabled students 52.13% declare pedagogic problems and 47.87% didactic ones. It means that teaching students with special educational needs is not in line with educational and pedagogical assumptions. What constitutes the biggest problem for respondents? It turns out that in the recent years, the number of students with conduct disorders increased significantly and it poses a great challenge for the teachers. The

most common form of pedagogic actions undertaken were reprimands, infringing, and complaining about difficult family environment of the student. It happens all too often that student with conduct disorders are provided with individual organisation of learning, which is strongly segregating. Moreover, teachers often treat students with intellectual disabilities differently then other students by posing smaller requirements on them. What is more, there is a tendency to move students with special educational needs from publicly available schools to special or integrative schools after first semester. Teachers and head teachers alike, often do not differentiate between the opinion on special educational needs and the opinion on disability. This is a result of insufficient knowledge of the law concerning disabled students. Head teachers do not provide the students with possibility of taking part in remedial classes that they are entitled to, the teachers do not take into consideration the guidelines from the opinions, while preparing individual programmes for students, also School›s Internal Assessment Systems (*pl. WSO - Wewnętrzszkolny System Oceniania*) do not take into consideration specific needs connected with functioning of disabled students in school environment. The above mentioned deficiencies are serious gaps in teacher›s competences and can lead to many didactic and pedagogic difficulties. From the general analysis of collected data it can be concluded that surveyed teachers feel helpless mostly with pedagogic difficulties and that they feel they can do more with didactic ones. The situation that is often considered to be difficult, by the teachers working on all educational levels, is the overload situation. The reason for it is, most of all, lack of understanding for both the teacher working with the disabled student and the student himself/herself. According to the respondents, both schools and parents have too high expectations of teachers. Moreover, a single teacher, often without any kind of specialist support, feels uncomfortable in didactic situations. Lack of guidelines is another group of difficult situation, especially for kindergarten teachers and teachers of older classes. Impediments, are considered to be difficult situations, especially among subject teachers (15.0%). They result from lack of specialist support, overpopulous classes, and so-called "difficult classes", lack of possibility of fast professional development and long waiting time for the diagnosis. Some teachers considered the mere presence of a disabled student as a difficulty in their work. Moreover, rankings of schools make a teacher's work more difficult, as they create pressure on the teacher to give positive grades for disabled students, even though the children have not necessarily mastered the requirements posed by the curriculum. This, in turn, leads to conflict situations on the line of teacher–student–parent. Deprivation is rarely present difficult situation (most often concerning subject teachers – 4%). It was mainly manifested as a feeling of lack of sense to educate disabled student in school environment which is not matching his or her needs.

STUDENT WITH SPECIAL EDUCATIONAL NEEDS IN THE EDUCATION SYSTEM

According to the majority of the respondents education of disabled students should be done in integrative schools and kindergartens. Argument for such choice is obviously the fact that teachers and specialists working in such facilities are much better prepared to work with the disabled student. Other preferred forms of schooling for disabled students are special schools and education facilities and, to similar extent, forms of individual

teaching. Integrative classes in publicly available schools and kindergartens were only third choice in the survey. Unfortunately, only a minority of respondents believe that education of disabled students can be done in publicly available educational facilities. It turns out that there is a high resistance to inclusive education among teachers, irrespectively of their place of residence. Kindergarten teachers declare, in over half of their choices (52.80%), usage of integrative education forms, while teachers of grades 1 to 3 suggest, special schooling as an alternative to integrative education (23.53%). Subject teachers have similar opinion on the matter and they, more than others, suggest creating special classes in publicly available schools (11.76%). This means that there is still a strong tendency for segregation of disabled students and a belief that in special environment he or she will have learning and teaching methods matching his or her needs, and will be supported by a specialist. The correlation between place of work and acceptance (or lack of thereof) for place of the disabled student in the inclusive education is statistically significant. However, generally, the attitude of the surveyed persons towards inclusive education is negative. The definite majority (75.82%) of kindergarten teachers do not see any chances for educating the disabled child in publicly available kindergartens and only 24.18% of them support this form of education. The fact that over a half of teachers of grades 1 to 3 see a chance of success of inclusive education is somewhat optimistic, but at the same time, a large portion of those teachers (46.3%) do not see any chance for inclusive education. From all groups surveyed, teachers of grades 1 to 3 are most favourable towards including disabled children in publicly available schools. Unfortunately, most (65.31%) teachers of older classes would be happy not to take part in the education of the disabled students.

CLASS TYPE FOR STUDENTS WITH SPECIAL EDUCATIONAL NEEDS

When selecting the best form of education for the disabled student respondents chose from:
a) Uniform class, in respect to the type of disability and degree of intellectual disability;
b) Class consisting of both regular and disabled students, uniform in respect to the type of disability and degree of intellectual disability;
c) Class where regular students are together with disabled students with different types of disability and different degrees of mental disability;
d) Uniform class in respect to the type of students' disability, divided into groups according to the levels of knowledge, skills, and degrees of mental disability.

It turns out that the most commonly selected form of class (42.66%) for disabled students was class where there are both regular and disabled students with different types of disabilities and different degrees of mental disability. This is what is commonly known as the model of integrative education preferred for disabled students. The second most popular choice was that of class/group of students uniform in respect to the type of disability and degree of intellectual disability (30.96%). Those results are satisfactory and at the same time they point out to those elements of inclusive education which, due to their weakness, require special attention. So far, the results showed that the main area requiring the above mentioned attention is the area of poor teacher competences for teaching students with special educational needs. Therefore, systemic solutions to the problem should be targeted at developing those competences. The third choice in the survey (15.83%) was

uniform class in respect to the disability of the students, divided into groups according to the levels of knowledge, skills, and degrees of mental disability. This is a model functioning in special schools. The experiences of respondents shows preferences for integrative education of the disabled students. It should be analysed in-depth with both developing competences and systemic solutions for inclusive education in mind.

ASSESSMENT FORMS OF THE STUDENT WITH SPECIAL EDUCATIONAL NEEDS

The requirements of educational reform obliges the teacher to verify existing methods of assessment of the disabled students. Traditional method of assessment – formal grades has been criticised for a long time and acknowledged as insufficient for the requirements of modern education. Formal grades are treated by students as either a reward or a punishment and give the student little information on his or her progress. Moreover, there are no precise criteria of assessment. What is also important is the fact that teachers mostly assess to what extent student has mastered the material and do not take into consideration child's learning capabilities. It has to be said that the traditional form of assessment (grades) does not fulfil required functions: informative, corrective and motivative. Surveyed persons believe that for child/student with disability descriptive assessment is the most effective one (38.6%). This kind of assessment is a result of careful observation of a child during the school year. A teacher who works with a child having psychophysical development disorders should very carefully observe, analyse, and register all noticeable changes, even the smallest ones. When creating descriptive assessment the teacher should take into consideration child's educational progress, his or her emotional and social development, and register student's personal achievements. As it turns out, proper registration and editing of the observed changes is not an easy task. From teachers' testimonials, it can be concluded that they expect ready-made forms for noting down the observations. Moreover, they have problems with selecting proper words and phrases for the description. Descriptive assessment is very important element of shaping the assessment and one of key elements of dialogue education. This allows the teacher to know, understand and be together with the student. It fulfils informative, diagnostic and forecasting roles. Declaring the importance of the role of the descriptive assessment is not proportional to the frequency of its usage. The surveyed persons ascribe an important role to verbal assessment (37.5%) which gives the necessary information and allows for additional explanations. Moreover, its additional asset is the possibility of including emotions that appear during the assessment as part of the assessment. Traditional assessment in form of formal grades did not get much recognition, and was chosen only by 10.1% of respondents. The motivation for that decision is the fact that formal assessment is not always objective or just, and that it is hard to assess its reliability and its correctness.

The results of the interviews with teachers show that there are special difficulties for teachers in creating verbal and descriptive assessments, and as a result the effectiveness of those forms of assessment as well as frequency of their usage is low.

RESULTS OF THE DISABLED STUDENTS AND THE ASSESSMENT OF SCHOOL'S EDUCATION LEVEL

The results of the study show that most of respondents (57.6%) believe that results of the disabled student have significant impact on final assessment of the class or school's quality of education. The minority (24.4%) of the surveyed persons believe that there is no direct correlation, and 18.0% of respondents had no opinion on the issue. These results may be the indicator of the teachers lacking professional competences for working with the disabled student, or negative conditions in the classroom environment, e.g. to large classes which make it impossible to integrate and work with the disabled student in a proper way. Lack of teacher competences can seriously destabilise work and make it much harder to include other students.

According to the 81.4% of respondents, student with disability has full right and chances to achieve good and very good grades, despite the realisation of the IETP which is matching his or her capabilities. This attitude is in line with the dialogue attitude in education as it gives chance or success and decent treatment of every student. Irrespective of the workplace, over 90% of teachers believe that the assessment should be adequate and matching the requirements posed by IETP.

Analysis of the results of the studies done on the competences that allow for realisation of inclusive education in the UNDERSTANDING area of dialogue lead to following conclusions. It is very difficult for teachers to understand holistic view of student with disability. Unfortunately what dominates is noticing disorders and human is somewhere in the background. Many pedagogic and didactic difficulties, which are signalled by the teachers, point to this fact.For the examined group educating students with disabilities, it is a great challenge which they cannot meet, due to many barriers and obstacles. It can be said that teachers' resistance against inclusive education is a result of both their lack of preparedness and lack of support.

Teachers expect not only indirect but also predominantly direct support. They want assistants who specialise in special pedagogy to accompany them during teaching of the disabled students. Respondents believe that working with large classes of both regular and disabled students make it almost impossible to notice and even more impossible to understand individual needs of both regular, who according to the respondents loose the most in the process, and disabled students alike. The level of the examined elements of the UNDERSTANDING area of dialogue is highly unsatisfactory. However, symptoms of this poor level of could be used to search for improvement of the current level of UNDERSTANDING.

TEACHER COMPETENCE LEVEL IN THE AREA OF BEING TOGETHER AREA OF DIALOGUE SCOPE OF COMPETENCES NECESSARY FOR CREATION OF IETP

Competences of kindergarten and school teachers in the area of dialogue defined by BEING TOGETHER set skills which, stemming from knowledge about and understanding of the student, allow for fulfilling the educational process that is adequate to his or her capabilities. Those competences can be defined as all competences that support the student

in the educational process. For the purpose of this research only some competences were chosen. Among the chosen competences are those that are decisive for preparation of the individual educational-therapeutic programme (IETD) for student with disability opinion on the need for special education.

SENSE OF BEING COMPETENT IN THE AREA OF CREATION OF IETP

It turns out that vast majority (62.7%) of teachers declares lack of competence for creation of individual educational programmes for students, and only 33.4% declares that they are competent in this area. Kindergarten teachers are among those who assess their competences for creation of IETP as the worst. Only 30.67% of them declare to be competent and 69.33% claims that they are definitely not competent for the task. A large portion (47.92%) of teachers of older classes also declares that they lack competences for creation of IETPs. Slightly over half (56.0%) of teachers of grades 1 to 3 declares themselves to be competent in the creation of IETPs. However, the results are not satisfactory, as at each stage of education, over half of teachers do not feel competent for creation of IETP. Numerical data confirm the information received from interviews with teachers and observations of their daily work. Teachers of grades 4 to 6 often do not take into consideration the guidelines included in the IETP and apply their own criteria for students with SEN. This is a result of lack of consultations and cooperation between teachers and specialists. As a result, teachers pose to high or to low requirements on students with SEN.

It is important to create systemic resolutions that would improve this type of support for the student with opinion on the need of special education as well as specialist support for teacher. Teachers have often stated that their feeling about the need for competences to do this task is not the same as doing this task. They see it as two different processes and procedures. They believe that their knowledge about creating IETP and understanding the need for it is not always possible to implement in educational practice. The requirements, which stem from different disorders of the students, are much above their level of competences. Therefore, in fear of making mistakes, they need support from specialists to be guaranteed by the procedures.

SELECTION OF STRATEGY FOR WORKING WITH STUDENTS WITH SEN

The respondents selected their answers from the proposed options. The following two options were the most common choices:

A. Individual curriculum which focuses on disability

B. Common curriculum for all students and additional work with disabled child in order to meet the requirements.

From the two strategies of working with the disabled student in publicly available class, most of respondents is for common curriculum for all students and they propose additional work with disabled child in order to meet the requirements of the curriculum. 42.73% of the respondents decides to pursue individual curriculum focused on the disabilities, so in order words a model of viewing a human through his or her dysfunctions, flaws, and disabilities. The concept of viewing disabled student through his or her dys-

functions and shortcomings in accomplishing educational goals is all too common among kindergarten and school teachers. Place of residence is not a strong factor for selecting each of the two strategies. Respondents from both cities of various sizes and countryside selected variant B, i.e. common curriculum for all students and additional work with disabled student to meet requirements, more often. Even though it is not statistically significant, it can be seen that respondents from large cities are especially favourable towards this strategy. It can be assumed that with growing number of disabled students in publicly available schools and low competences of teachers for inclusive education this variant is the safest one for them. Their lack of certainty, lack of knowledge about methods of working with student with disabilities together with regular students, and often their awareness of being left alone with the problem, which is often directly expressed in the interviews, create a serious barrier in realising the strategies of common curriculum for all students.

DIDACTIC STRATEGIES IN THE INCLUSIVE CLASSROOM

The results of the study show clear preferences of respondents towards cooperation strategy (50.7%), which guarantees cooperation as a mean for achieving common goals. It is a confirmation of the previous strategy of common curriculum for all students by organising common actions. 23.8% of respondents focuses on communication strategies, which means that the process of communication among students is most important and can determine the accomplishing and the effects of school tasks. The least frequently chosen strategy is co-existential strategy, where each student focuses on his or her tasks. This strategy, even though highly individualised, excludes the possibility of integrating the group and is difficult to accomplish in some groups. Interviews with teachers as well as observation of their work, as supporting methods to the survey, allowed noticing that cooperation strategy is somewhat unique and rarely used, especially in grades 4 to 6. However, preferences for usage of this strategy are declared what does not raise optimism. It is a reason to pay special attention to this kind of work in non-uniformed group during teacher trainings .

Kindergarten teachers expect most of all support of a specialist from counselling centre (28.97%) while working with disabled child, some of them, but not too many, makes use of peer help as well. Only small percentage (17,76%) of teachers expect help from supporting team. This gives clear indicators that lack of ability to BE TOGETHER and that there is no trust for common work for sake of student. In the examined group, feeling of lack of support is the most commonly felt (16.82%).

Among teachers of grades 1 to 3, the help of specialists from counselling centres is the most commonly expected type of support (36.26%). It can be assumed that this is a result of current systemic resolutions which require gaining the opinion on the need of special education for each disabled student in order to start individual work with him or her. In this group peer help is assessed the highest from among all of the groups studied (32.97%). It can mean that this group is the most integrated from teacher groups at school. Practice shows that teachers who teach in grades 1 to 3 often create tight-knit social group. This kind of group can be sometimes more effective than the support team, which is chosen only by 17.58% of teachers in this group. Teachers from this group also least frequently (2.02%) selected that they lack of any help whatsoever, what can mean that they are good at getting support for their work from different sources.

Teachers of older classes expected also help from specialists from counselling centres (31.82%) but they also get support from peers (25.0%) and from support teams (21.59%). They also find other means of support (11.36%) but at the same time they complain about poor availability of those sources.

ATTITUDES HIERARCHY TOWARDS DISABILITY

The most common (43.98%) attitude among respondents is an ambivalent attitude. This attitude stems from the assessment of situation of the disabled person as a helpless one, and therefore does not assure that the person who receives help will be understood and it does not assume any reciprocity. The second most common attitude, i.e. compassion (18.05%), supports the thesis that a neutral (ambivalent) attitude is close to mercy or indifference. The third type of attitudes among the surveyed persons is the volitional positive attitude of being together, selected by 14.79% of all respondents; however, only few of them (1%) are interested in knowing about any disability. A negative emotional attitude in the form of rejection is not common among respondents (1.63%), but it can lead to negative volitional attitude, i.e. avoiding contact. Next, attitudes are neutral, e.g. compassion (3.01%) or even negative, e.g. rejection (1.63%) or reluctance (0.76%).

Analysis of the data gathered shows the low level of teacher competences for true, authentic and double-way dialogue. It has to be emphasised that the hierarchy of declared attitudes is not positive for dialogue education, but the fact that most of attitudes is neutral or positive is comforting.

Working with students with SEN, including disability, is not encouraging the dialogue but rather mercy and compassion. Respondents are especially reluctant to work with children with mental disorders, ADHD, autistic disorders, and all emotional disorders. The highest extent of being together with the disabled student can be seen among kindergarten teachers (17.68%), much less among teachers of grades 1 to 3 (12.75%) and teachers of older classes (11.58%). All actions in the process of education that require many strategies, not always known by teachers, and that do not bring immediate result are understood as BEING TOGETHER. Compassion is not frequently declared attitude, but most of its cases can be seen among kindergarten teachers (20.99%) and least among teachers of older classes (15.79%).

Results of the study also illustrate teachers' attitudes towards disabled persons. Among teachers, the least choices of negative attitude of reluctance were noted (0.55%), as well as the least choices of knowing (0.55%) and understanding (8.29%) attitude. Teachers of grades 1 to 3 revealed a low level of choices of negative attitudes, such as reluctance (0.98%) and rejection (1.96%). At the same time, they declare very few choices of positive attitudes necessary for dialogue: KNOWING (1.96%) and UNDERSTANDING (12.96%). Among the teachers of older classes, a very low level of mercy (1.05%) and rejection (1.05%) can be seen, as well as a very low need for knowing (1.05%) the disabled student.

EXPECTED CHARACTERISTICS OF THE TEACHER IN INCLUSIVE EDUCATION

In the dialogue with the disabled student, a teacher is a person in possession of a very high level of knowledge about different dysfunctions, and forms and methods of working with student with different types of disabilities. Such a set of traits will allow for KNOWING, UNDERSTANDING, and BEING TOGETHER and therefore for being open to new and unexpected didactic and pedagogic situations. The teachers needs also to be very patient in waiting for the effects of his or her work, as well as for students to show achievements and individuality. Any reflection should be directed on making good use of the support provided by different specialists, which is more favourable for cooperation than the sense of passing tasks and problems to other people. The teacher needs to be good mediator and negotiator, be calm because of his or her internal understanding stemming from understanding of other people. The teacher needs to be ready to help, but not because of mercy or compassion but because of the need for helping and need for being together with other human being, who helps the teacher to gain new experiences, knowledge, feeling of causation and teaches him to search for different solutions. This guarantees the flexibility, confidence and the ability to make right decisions. Traits of the teacher in the inclusive education should be complimented with competences, such as being consequent, creativity, positive attitude towards life, mental resilience, operativeness, and will for self-development. This kind of profile of a teacher and people supporting him or her can be favourable towards dialogue education.

The profile of the teacher in the dialogue inclusive education was based on the choices of the studied groups of teachers and people supporting them. This may mean high expectation of the teachers of young classes towards themselves as well as high expectations towards the people who support them. Teachers of younger classes, due to their awareness of accompanying child in development in key moment of its life, face great challenges in their work with children. Similar expectations are preferred by kindergarten teachers. It may raise concerns that among this group there is lowest selection of traits such as: calmness, tolerance, decision-making, feeling of justice, and elasticity. It would be good to make use of those results in training of kindergarten teachers and not only them. Teachers of grades 4 to 6 colloquially called "subjects" assessed knowledge lowest from the studied groups, which was still relatively high, but on the other hand they have put a great emphasis on the cooperation with specialists. Undoubtedly, this can be connected with lower level of knowledge about, and lack of competences in special pedagogy as well as less frequent contact with disabled students. Results of the study do not show any correlation between respondents place of residence and preferences as to the traits of a teacher in inclusive dialogue education. In each of urban agglomerations the choices were relatively similar to the choices done by studied professional groups.

DIALOGUE WITH THE STUDENT WITH SPECIAL EDUCATIONAL NEEDS

It is worth making an attempt to summarise whether dialogue with students with special educational needs has found its practical reflection. Most teachers claim that there is no possibility of dialogue education within the scope of the modern school. This attitude is

determined by the belief that basic standards of education cannot be crossed. The result is often so called "mock dialogue" due to lack of time, lack of knowledge about the student and his educational needs, large scale of teaching, and lack of depth in teaching. Teachers-sceptics declared an unwillingness to make any attempts of cooperation with dysfunctional students, treating their presence as "necessary evil" which they have to tolerate. Subject teachers fear disabled students and need multilevelled support from specialists, and didactics.

The reason for the barriers in the dialogue education is lack of teacher assistants, lack of pedagogic therapy specialists, and search for financial savings.

According to the teachers, especially subject teachers, there is a great need for in-class support as well as for support during individual classes or after-class activities, constant quality control over the pace and scope of tasks and exercises, providing additional explanations, editing notes, help with making notes and explaining some specific exercises. Without systematic support of specialist teacher subject teachers cannot think about successfully educating disabled students in publicly available schools.

In the mass perspective, it is very difficult to undertake successful individualisation of teaching–learning process in an overcrowded classroom. It often slows down the accomplishing of the educational goals and sometimes even reduces the activeness of other students. Therefore, teachers consciously make no effort to have those students become more active.

Opponents of the dialogue point out that using dialogue education deprives teachers of their privileged status in educational practice. Dialogue education, in order to succeed, requires most of all the school to change its culture.

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TEACHER CAREER

SCHOOL PERSONALIZATION AND GENDER IDENTITY

Giuseppe Mari

ABSTRACT

Within society, school is one of the most important institutions. Today, we know for certain that within democratic society, each citizen has the right – being a person – to express his/her originality, as well as the duty to offer his/her contribution to the nation. This idea clearly identifies the concept of personalization: it means to have rights and duties at the same time because of the moral identity proper to each human being. This paper aims to introduce that subject in order to promote the issue of personalization within the school in relation to male/female identity.

AT THE ROOTS OF SCHOOL INSTITUTION

Both neo-Latin words to identify school (Italian *scuola*, French *école*, Spanish *escuela*, Portuguese *escola*, Romanian *școală*) and those within Nordic languages (not only English school, but also German Schule, Swedish skola…) just like Hungarian iskola come from the Greek word *scholè* identifying "free time". It seems paradoxical, but only if we interpret freedom as a disengaged condition. Actually it is not the ancient meaning of scholè according to which "free time" means time free from work, but engaged in personal education. Its ancient (Indo-European) root is the Akkadian *ešgallu*, coming from the Sumerian *èš-gal* that means "great temple", regarding the place where school was allocated at that time (Semerano, 1994, 284).

The connection between education and not-instrumental engagement is clear and stressed also by the meaning of Latin word *otium*, the antonym of *negotium*. This does not mean not to work at all, but to work about themselves, i.e., Latin *coltura animi* as self-education. Moreover, it is not by chance that, within Roman civilization, primary school is named *ludus* and secondary school *schola*: in both cases the main feature is "gratuity", i.e., something going beyond what is useful. In fact the first word means "game" too; the second (clearly coming from *scholè*) was dedicated to teach "liberal arts", i.e., knowledge – like music – not engaged with basic (functional) needs.

After the Second World War, when it was discussed about the refoundation of school systems, Maritain reconsidered the idea of "liberal education", as the education marked from "common humanity" (Maritain, 2001, 187), i.e., the education finalized to learn what is essential, not only functional, to human being. He was inspired by the Scholastic tradition. He knew very well both Aristotle's idea of perfection as self-sufficiency and Thomas' idea that the human creature is "value in him/herself". In his *Summa Theologica* the word *persona* – from the etymologic point of view – is traced back to "*per se una*" (I, q. 29, a. 4, resp.). The best explanation is within *Summa contra gentiles*. Thomas says that God guides the rational creature as if he/she were end in him/herself (III, 112, 1). Centuries

later, to the Thomistic doctrine exactly corresponds Kant's doctrine about the "categorical imperative" (Kant, 1982, 126). It's very important because it signifies something common between Christian and secular culture, i.e., the two main roots within the European tradition. They both support the human being as a value in him/herself, something completely different from everything else. The idea of personalization is connected to this doctrine.

In fact, what is peculiar to the human being? Freedom. What does it mean? That only the human creature among animals can go over environmental conditionings. This faculty is identified by the word "character" (in Greek, *ethos*), i.e., the intentional identity, voluntarily built (as it is well expressed by the Greek verb *ethopoiéo, poiéo* means "to produce"). Human character shows freedom as "self-dominion" (in Greek *egkráteia*), for this reason the most famous ethical apologue of all times – *Hercules at the crossroads* (regarding the choice between vice and virtue) – is referred to the capacity to choose the best from the moral point of view. How is it possible? Thanks to education as "will training": school is concerned too.

AT THE ROOTS OF PERSONALIZATION

Ethics identifies the heart of school mission because the person is identified essentially as free subject. We can recognize this by focusing the idea of personalization within the education of the human being.

The oldest document about Western education is *Iliad* because it speaks of Phoenix and Chiron as Achilles' educators. The first is told to be a brave warrior, he made the hero clever at "tongue" and "hand" (IX, 562-566), i.e., within the two basic parts of ancient education – rhetorical and physical training –. The second – the "just Centaur" (XI, 1094) – introduced the young warrior in medical art: it's very important because the ancient Greek medicine is the first advice of Western humanism according to Jaeger (1959, 3-76). In fact, as the Hippocratic *corpus* clearly shows, the Greek medicine goes beyond mythical and sacred explanations, by reaching generalizations coming from the empiric observation. The therapeutic action however does not mean to apply the universal knowledge to the specific case, because each situation must be recognized in its originality: that is why Hippocratic medicine is attentive to the singularity just like humanistic attitude – this is the starting point of personalization –.

The dramatic scene opening *Iliad* does not give feedback about Phoenix and Chiron's advices. In fact, facing the plague in their camp, Achaean leaders ask to the diviner Tiresias to pray Apollo in order to eradicate the disease. He is doubtful as to what he must say because he fears the most important leader – Agamemnon – but Achilles reassures him. Tiresias says that god's anger will be appeased only when Chryseis – Agamemnon's spoil of war – will be given back to her father, Chryses, Apollo's priest. The king, at the head of the Achaean army, unwillingly accepts that response, but he claims Achilles' spoil of war – Briseis – in return. A furious dispute raises between the two heroes, but Achilles – although provoked by Agamemnon – is not blinded with anger and gives evidence of Greeks *phrónesis*. In fact, he shows "wisdom" (as the word means) because he holds his *phrén* a bay, i.e., his heart, soul, mind... in short: himself as active subject. In other words, he shows himself as Athena's follower. In fact, she guides him in his decision and she – the goddess of wisdom – guides Telemachus (Odysseus' son), in the first four books of *Odys-*

sey, to make him clever "in the mind (*katà phréna*) and in the soul" (I, 294). Also, today, a human being's moral identity is the heart of anthropological features and the word "person" emphasizes it, just like the term "personalization".

Education identifies this ability. To be educated means to be able to guide themselves – this is the deep meaning of "free*dom*" – so that the praxis corresponds not passively to what each person needs, but to what intentionally he/she desires. It is essential to note that this practice does not express primarily technical skills, but the ability to act well from the ethical point of view, by evaluating desires in the light of human dignity. For this reason, education takes needs into account, but goes beyond them. The educated person shows wisdom as the ability to choose – within the concrete situation – the morally appropriate conduct because – as Aristotle says – the human being is called not only to live, but to live a "good life" (*On economy*, I, 3, 1343b 20).

Personalization expresses this idea because it starts from the person as moral subject. García Hoz says: "Personalization (…) commits and ennobles because, by virtue of it, someone who before was considered 'any one' in anonymous way, now becomes the 'focal point' in reference to personalization. Personalized education is as it must be only if it corresponds to the original identity of someone and, at the same time, recognizes the nobility of each person as such" (2005, 28). This statement reminds Thomas' objection within his polemic against Averroism: "*hic homo intelligit*", "this man learns".

SCHOOL AND PERSONALIZATION

In the apologue *Hercules at the crossroads*, the hero is told to return to himself by the call to his genealogy. In fact, genealogy means the roots of life, the origins of the present, the structuring factors within existence. I think that the same call can be useful in order to investigate the relationship between school and personalization. What is its genealogy? What can be said from its past to our present?

Historically, the oldest evidence of school as "institution" is the Pythagorean "confraternity" (*thíasos*), i.e., the religious community that considered Pythagoras' philosophy as the highest form of knowledge. Its aim was to introduce in a specific lifestyle (*bios theoretikós*) inspired by Pythagorean wisdom: a kind of theoretic life without productive purposes. At the roots of ancient philosophical schools there is the Pythagorean *thíasos*. Both Academy and Lyceum are very similar to it just like Hellenistic schools. They all led a communitarian life, as it is described within the *Letter VII* (here Plato says that knowledge is transmitted within "common life": 341d) and in the *Nicomachean Ethics* (here Aristotle strikes the verb *synphilosophein*, i.e., "to co-philosophize": IX, 12, 1172a 1-15). It is the same situation expressed by the Hippocratic medical college.

Carolingian Palatine School draws on the Greek philosophical schools: Alcuin wanted to build the "Little Athens" within the heart of the Holy Roman Empire, i.e., the starting point of modern Europe: it's the same cultural imagination inspiring Raphael in the execution of his *School of Athens* inside the Apostolic Signatura in Vatican Palaces. Between these two chronological terms lies the historic medieval university whose name refers to the aspiration to bring unity within the multiplicity of knowledge. In the University of Oxford, different faculties overlook in the main courtyard and the largest gate is the one of the faculty of theology – the architecture shows exactly what means the book *Reductio artium ad theologiam* by Bonaventure –.

Within the Medieval university took shape the college that, during Humanism, took his own life and became *officina humanitatis* ("workshop of mankind") according to Comenius' words (1993, 127). In their school communities (the most famous in Italy was founded by Vittorino da Feltre in Mantua) humanists used to live together with their disciples, just as it happened in the great colleges of both the Protestant Reformation and the Catholic Counter-Reformation, and the same thing happened in the secular colleges like the Philantropinum (founded in Dessau). All these institutions aim to educate first of all to become a sociable individual: it's the same idea expressed by Humbold University, the paradigm of higher school as it is nowadays, finalized to lead boys and girls to full citizenship. The features are secular, but the roots are religious according to the Bible doctrine of human being created similar to God (inside the German word *Bildung* we can recognize the term *Bild*, i.e., "image").

What does identify the school as institution? Not the instrumental features, related simply to knowledge transmission, but the challenge to guide the pupil to maturity: the most complete expression of teaching takes place within the educative relation thanks to which everyone becomes "who" he/she can be even through what someone learns and does. School mission is "humanization" as it is well expressed by the Latin translation of Greek word *paideía* into *humanitas*: the challenge is – first of all – ethical and deals with the capacity to choose only what is up to human dignity. It is the aim of "liberal education" which does not despise instrumental knowledge, but ordinates and subordinates it to person's moral growth through personalization. For this reason school knowledge is not completely identified in descriptive knowledge.

"LIBERAL EDUCATION", SCHOOL PRACTICE AND DESCRIPTIVE KNOWLEDGE

When "industrial revolution" was at the beginning, in the society from which developed today's world, Newman faces a topical issue. In fact, during the transition from "the first industrial revolution" (connected to "heavy" industry) to the "second" (related to the multiplication of energy sources) up to the present – the "third" – called to deal with the challenge of sustainability, the problem is always the same: how to face the logic of "useful"? The prominent issue is the instrumental knowledge, in fact the new cultural assumption is the Baconian idea that there is no science without utility. Newman is perfectly settled in contemporary culture. He is not against that idea on principle, he appreciates the good side of that situation (allowing the spread of knowledge like never before), but he recognizes the risk from the anthropological point of view, i.e., the eclipse of "self-cultivation", the rise of a soulless "education". Can knowledge be oriented only in an instrumental way? Yes, it is – but it is not "human" any more –. Actually knowledge, human knowledge, is the knowledge reached by *homo sapiens*. Latin verb *sapio* means not only to know, but also to taste. Within that concept we find Pascal's *esprit de finesse* going beyond the *esprit de géométrie*. Over Modernity many authors, aiming to put the objective and the subjective side of knowledge close each other, from Gracián (connecting education to the recognition of each singular person) to Kant's *Critique of Judgment* (written with the purpose to unify human knowledge), speak about "taste" as the peculiarity of human knowledge. Newman is clearly aware of that issue and – speaking about university (actually the refer-

ence can be extended to the school in general) – he stresses the role of liberal education as the knowledge that is "enough to itself" because "it needs no additions and refuses to be oriented in any way or absorbed in any activity to show up properly for our contemplation" (Newman, 2005, 120). He knows very well that Modern culture means first of all "useful knowledge", i.e., instrumental rationality, organization and bureaucracy, but he is also aware that freedom goes beyond the horizon of the suitable. "Liberal education" is such because it concerns what goes beyond usefulness and – for this reason – is value in itself.

That's why "liberal education" is peculiar to human creature, because – being free – the person is "right in him/herself", as Rosmini (1967, 102) writes in his *Philosophy of Law*. Newman says it clearly and refers it to the ethic value of knowledge: "useful" – he says – means "what inclines to the good", for this reason there is no opposition between "liberal education" and functionality, but the primacy of the first issue on the second (Newman, 2005, 158). The same problem rises about the relationship between knowledge in general and descriptive knowledge. Referring to human being, descriptive knowledge is not completely able to investigate human creature – *who* is human being goes beyond the descriptive approach –. In fact the human being – being person – is never completely "object", because – being free – first of all he/she is "subject". For this reason, the educational challenge – clearly expressed by the idea of personalization – is above all a moral challenge, to bring out the originality of each person. This is true first of all according to the identity of male and female.

THE CHALLENGE TO BECOME MAN OR WOMAN

Presently, the subject of gender is very controversial, but the problem does notbegin in today's worldy. In fact, during the last few decades, it has spread a (questionable) descriptive approach to sexuality that opened the way for today's reductive interpretation. At first, it began with a seemingly value-free approach, for example through the Kinsey Reports (*Men's sexual behavior*, 1948; *Women's sexual behavior*, 1953) describing human sexuality from the functional point of view. In this way, sexuality was reduced to pure physiology, but this approach can't recognize person's dignity.

During the twentieth century, several authors showed that the descriptive drift is connected to the "explanation" (in German *Erklären*) of the human being, not to his/her "comprehension" (in German *Verstehen*). For example Max Scheler denounced it by noting that, "despite their undeniable value, sciences dealing with man (more and more specialized), rather than clarify his/her identity, hide it" (1997, 117). Indeed, from the belief that the human being is an animal like everyone else – many times expressed in the last three centuries – comes the idea that the functional criterion would be decisive in order to focus personal identity.

The "comprehensive" knowledge of human sexuality needs an approach not only precise, but also wise, i.e., not limited within the descriptive knowledge dealing with human being as an object. In fact, human body – related phenomenally to sexual difference – is not strictly "body" but "body" in large sense (like Italian *corporeità* and German *Leib*), i.e., according to Edith Stein, "living spiritual body" (2000, 138), earlier – as Saint Paul says – "spirit's temple" (1Cor 6,19). Actually, the "human" body is not only animal, as it is well shown from emotions and feelings, for example in poetic communication: in fact there is always intentionality, at least in a potential sense. Through our body – growing by

natural laws – it is our person – globally considered – at issue, with his/her own questions concerning "who" we are and we are becoming, not principally "what" we can do thanks to our knowledge. This is essential to human growth, but not commensurate to the descriptive approach.

THE ORIGINALITY OF THE MALE AND FEMALE PROFILES FROM THE ANTHROPOLOGICAL POINT OF VIEW

Personalization allows to recognize the anthropological identity as more complex than the descriptive knowledge. Certainly, the person – being free – decides for him/herself, exactly as – being materially composed – is under the descriptive approach, but – at the same time – the person neither expresses absolute freedom nor is totally material. In fact, human freedom must recognize human dignity (otherwise it changes into arbitrary acts) and human body must express itself not only as an object (otherwise it faces problems from many points of view, psychological inclusive). When someone acts without self-awareness, he/she is at manipulation risk, today increased by the technique power.

Sexual identities are involved within sensory experience, but it is not enough otherwise nothing separates human sexuality from animal one. On the contrary, this difference is original as it is proved by centuries of literature, philosophy and other cultural expressions. This is the limit of "Gender approach" reducing sexual identity – from the symbolic point of view – to conventions, not to something original, i.e., innate too (Lorber, 1995; Butler, 2006). Clearly: there are also social norms, but human sexuality meaning isn't totally under social convention.

In a word: from the descriptive approach to human sexuality always comes the symbolic interpretation, related not only to social conventions: it is also related to deep and original common meanings. I begins from phenomenal situation in order to reach the symbolic level too. Which is the starting point? Fatherhood and motherhood, respectively in the matter of manhood and femininity. I mean that from the physical manifestation of fatherhood and motherhood we can recognize the deep meaning of sexual identification as potentially oriented to be father and mother. Is it better to start from fatherhood or from motherhood? Man and woman both and together give life to their children, but there is no doubt that – from the phenomenological point of view (referred to the perception of the event) – the first relationship is always with the mother. For this reason I take the move by considering woman's identity.

What does it mean to be a mother physically and from the descriptive point of view? The total identification between the pupil and his/her mother: they live the same life. What does it mean from the symbolic perspective? The communion with the otherness, i.e., to express unity and composition basically. From this point of view, the mother is the "home" (Lévinas, 19902, 157-159), the "origin" as symbiosis producing the maternal bond, the strongest in all nature. For this reason, female identity is more complex than male identity – it is pure and simple communication –. For the same reason, a woman's identity seems to be more attentive to the quality in the relationship and less characterized from the instrumental aim than man's one. In confirmation we can notice that, during the twentieth century (the age most marked by a woman's public activity), peace became one of the most important values: it is a typical maternal value.

Female symbolic identity guides girl's education to be coherent to her deep identity. It is not a matter of jobs or activities, it is rather a matter of deep attitude. Being free, it is necessary to deal with human creatures not deductively: the symbolic identity must be assumed as Weber speaks of the "ideal type", i.e., the generalization of individual peculiarities not totally concerning anyone.

The same happens on man's side in the light of fatherhood, but the meaning is the opposite. In fact, to become father means to be "alterity" in respect to the child. There is no coincidence, but difference: it is not by chance that literature is full of narrations dedicated to the conflict against the father. One of the most notorious references is the *Letter to the father* by Franz Kafka, but the subject is more ancient starting from the myth describing Zeus' rebellion to Cronus. In the last decades, much has been said and written in order to criticize father's identity because of the reaction against authoritarianism (frequently marking traditional education), but today a father's identity garners more and more attention because of the evident problem of narcissism.

Father and mother are both essential to the growth of children even if more and more frequently they are not both present in their education: it is a condition of things not cancelling the matter of principle. Maternal love is characterized by the proximity to child's needs; paternal love by the moral distance (not indifference): the first increases the sentiment of safety within usual situations, the second within new ones. In the light of that symbolic interpretation, female's and male's education are partially divergent. A male's education is more competitive by nature than female's one. It is characterized by pragmatism, it is more physicality marked and more extroversive.

Today, it is growing – within education – the idea of personalization from the sexual point of view too. For example, there could be a correspondence between male educational drop-out and teachers' female massive presence within schools. From this point of view, personalization identifies a new challenge.

PERSONALIZATION AT SCHOOL AND GENDER ORIGINALITY

In the last decades, many studies were dedicated to the exploration of how being male or female directly deals with education both from pedagogical and psychological point of view, for example on what regards the relationship between teachers and students (Mullola-Ravaja-Lipsanen- Alatupa- Hintsanen-Jokela-Keltikangas Järvinen, 2012, 185-206). At the beginning it was explored principally female identity, more recently also male one. From the empirical observation it is clear that there are differences between males and females, generally at least (Zanniello Ed., 2007; La Marca Ed, 2008; Mari Ed., 2012).
As regards the mathematical reasoning, for example, it seems that males get better results than females, but females are more effective in arithmetic operations. As regards the linguistic capacity it seems that females are better, especially they are more able to enunciate quickly series of words with the same initial letter, while males show more ability in tests related to the recognition of the analogy among words. As regards language, it seems that females make use of both hemispheres, while males predominantly deal with the left one. There are differences also in the approach to space: males express better visual-spatial abilities, generally they have better orientation in space and go out of a labyrinth with less difficulties. Theories, however, are controversial, because of the ambiguity related to empirical evidences (Voyer-Voyer, 2014, 1174-1204).

There are differences also in the behaviour outside school. As regards friendship, for example, females seem to pay more attention to the quality of relations, while males show to take greater account of instrumental factors. On the female side, there is a greater psychological complexity; male profile seems more oriented outside, generally more utilitarian. Facing these peculiarities, personalized education (attentive to male/female difference) is fundamental. As regards male and female profiles, in the last decades there was a dangerous misunderstanding. Jean Guitton (1991, 74) noted that the twentieth century confused equality and uniformity: man and woman have the same dignity, but different identity. This was a very strong influence coming from ideology, but ideology is radically incoherent with reality: on the contrary, personalization comes from the deep identity of human being and follows reality as it originally is.

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GENDER INEQUALITY IN THE ACADEMIA - RESULTS FROM A PILOT STUDY

Orsolya Kereszty

ABSTRACT

Equality is a core value in the European Union, which means that discrimination based on gender is a violation of human rights (Pető, 2006). Inequality between women and men not only violates basic human rights, but it is also a great burden for the economy, and it results in a waste of talents as well (European Committee, 2010a) Researchers have studied the connection between gender and education for a long time. One of the focus points of research is searching for the reason why the learning patterns of boys and girls are different, why their performance is differentiated according to fields, why they have different opportunities and learning paths. What is behind the fact that girl's investment in education pays off much more slowly and to a lesser degree than boys? And why do they still undertake this investment? If there is really an "overabundance of women" in tertiary education why can we still talk about disadvantages that affect women based on vertical and horizontal segregation? Why do women prefer studies in the fields of humanities and men in the field of natural sciences? Why are women more likely to be "good students"? Where do women disappear during their academic career?

Researchers' careers are studied with a gender focus most widely in the United States but more and more studies have been conducted across Europe as well in the recent years (Buber et al, 2011). As opposed to the relatively well researched STEM fields (science, technology, engineering and mathematics), researchers grant little attention to the female researchers of the humanities and social sciences (Wolfinger et al, 2008) while in Hungary there is a general lack in studies that focus on female researchers. We have conducted a pilot study in the first half of 2014[1] in which the central questions were – in consistency with the results of previous Hungarian and international results – what kind of inequalities exist in researchers' careers and how individuals can and want to deal with these inequalities. The goal of our study was to get a general picture of those problem areas that (still) thematize the existing inequalities in the field in order to orient the beginning of a future, wider-spectrum study. In our current study we highlight three of the results from the previous study: How do the interviewed teachers/researchers deal with or experience the phenomenon of multiple burden? What is the general opinion of the interviewees about the inequalities they encounter in the field? What is the opinion of the interviewees about vertical segregation?

WOMEN IN TERTIARY EDUCATION

One of the objectives of the Europe 2020 strategy is to have 30-40% of youth between 30-34 years of age earn a higher education degree. Tertiary education is of key significance in

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1 Online questionnaire with snowball method

realizing the goal to make Europe the leading region in the global knowledge economy. In order to answer the challenges of a knowledge-based economy, there is a need for highly qualified people, who, in addition to possessing professional competence, need to learn skills such as flexibility, good communicational skills, and entrepreneurial behavior. These are all necessary for an individual to be successful in the labor market (Progress towards, 2011). The expansion of the number of university students that continued up to the middle of the 2000s was partially due to the increasing number of women who entered higher education, which in turn resulted in the expansion of training institutions (KSH, 2013a., Engler, 2011). Another result is that the growing number of women in higher education leads to a decrease in the prestige of a higher education degree, along with a decrease in the prestige of feminized professions and women's access to well-paid professions with a high prestige (Fényes, 2009).

The number of university students in Hungary increased until 2008 and then stagnated. Participation in higher education is significant compared to the development of the population. In 2001 there were 176 university students per thousand inhabitants while in 2011 there were 249 (KSH, 2013a). In 2011 the proportion of women in higher education in Hungary was 55%.[2] However, studies also point out that despite the quantifiable "overabundance of women" characteristic of tertiary education, women are still disadvantaged due to the vertical and horizontal gender segregation that is also characteristic of tertiary education (Fényes, 2009). Due to a marked horizontal segregation we experience significant differences in fields and university/college faculties (Engler, 2012). The gender ratio between areas of study is unbalanced and women are still over-represented in teacher training, education, health care and social care[3] while the proportion of men in information technology and technical sciences is around 80% (KSH, 2013a).[4] In accordance with the increasing number of women, the prestige of the teaching profession had decreased in last decades, and there has been a negative selection among candidates which means that weaker students come to the field and those who perform worse stay as teachers (KSH, 2013a). In 2011 83% of teachers were women and in terms of school levels there are significant differences: there are almost only women in nursery schools, their proportion is 88% in elementary schools, 71% in high schools, 65% in vocational schools, 51% in specialized schools and 71% in special vocational schools (KSH, 2013a). The phenomenon of the glass ceiling prevails here as well, meaning that the higher the position is in the hierarchy the fewer women there are (Progress towards, 2011).

In Hungary the smallest proportion of women is observed in the fields of technology and information technology. In information technology we can find 6,5 times while in the technical field we can find 4,5 times as many men (Szekeres et al, 2013). There have been many studies on the reasons why women are so underrepresented in these fields, and on what could be done to raise the number of women in these areas. A survey conducted between 2002-2005 across seven European countries revealed that the narrower-broader

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2 The ratio is similar int he European Union as well where the ratio of women in 2000 was 55% while in 2008 it was 60% (Progress towards, 2011).

3 Similar data is characteristic of the European Union as well. (Progress towards, 2011)

4 While generally speaking the number of women exceeds that of men in all fields it is typically characteristic that there are more men in the fields of mathematics, natural and technical sciences (MST) (Progress towards, 2011). The difference is especially high in information technology, engineering and architecture despite the fact that in total the gender ratio is improving. This means that for example in mathematics the genders are balanced while there are more women (63%) in life sciences (Progress towards, 2011).

environment did not consider a technical career fit for a woman because of which the female students continuously needed to explain why they chose to go there. Having to explain themselves, the need to perform better, and having to prove their competences continuously all contributed to their loss of self-confidence. These were, however, counteracted by the patronage of female students, belonging to the wider community of engineers, and the support of teachers and fellow colleagues. It is a significant finding that in a male-dominated community belonging to a gender minority results in lower self-confidence. Women have developed various coping strategies to deal with the issue: there were some who did not take notice of others' behavior, others conformed to the competitive situation, and others tried to make gender differences unnoticeable. (Womeng, 2005) When searching for solutions for the self-confidence problems of female students Baker et al. suggested that there should be more female teachers and students in technical studies. Their idea was not supported by the people who participated in their study because – according to them – this suggestion implied that women are not able to study and perform in the company of men without support. (Baker – Crawford – Lewis, 2001) In their study focusing on female students in electrical engineering, mechanical engineering, and information technology training Szekeres et al (2013) found that female students continuously had to justify their professional choices to their environments. Although the students who participated in the study mentioned positive examples as well, they said that they had also experienced lower expectations from teachers – due to them being women – which predicted a lower performance. The male-dominated field caused difficulties for them because of which they even thought of aborting their studies. It is interesting that there was no strong solidarity between the women and often the women who participated in the study were prejudiced against other female students (Szekeres et al, 2013).

According to data from 2011 those applicants had the most chances in Hungarian higher education that wanted to get natural sciences and engineering degrees. Those students who earned natural science degrees could find employment similarly to the entire degree-holding population, spending 3,21 months looking for a job by average as opposed to the 3,41 months average of students from other fields. The average salary of a graduate in the natural sciences field was 139.000 Hungarian Forints (including those working abroad) as opposed to the average 159.000 Hungarian Forints. The average salary of women in natural sciences was 123.000 Hungarian Forints while men's average was 159.000 Hungarian Forints. In technical fields women usually earned 150.000 Hungarian Forints while men earned 201.000 Hungarian Forints. The highest salaries are in the technical, information technological, economical and legal areas but the phenomenon of the paygap exists there as well[5] (Frissdiplomások 2011).

Women are usually more active students than men especially in the 35-44 age group (Engler, 2012). This is interesting because women's investment in education usually pays off slower and at a lower rate (Fényes, 2011) which is mostly due to the discriminatory phenomena against women in the labor market, such as wage disadvantages, vertical and horizontal segregation, difficulties due to the fact that women have to manage multiple charges and the phenomena of the glass ceiling, glass wall, and the leaky pipeline. A higher education degree is an advantage among women while men can get good jobs after

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5 In a profession where the average salary is larger a woman's salary is genereally around 161,000 Hungarian Forints while a a man's is 209,000 Hungarian Forints. In the field of information technology the average salary of a woman is 171,000 Hungarian Forints while men's is 220,000 Hungarian Forints.

secondary education (Jacob, 2002. as quoted in: Fényes, 2009). As their qualifications grow, men are more likely to be employed and parallel to this are more likely to avoid unemployment. Despite these disadvantages women's willingness to study is still significant and they still invest in education despite the fact that it takes a longer time for their investments to profit and they generally profit less (Engler, 2012).

There are various partial explanations for describing the "overabundance of women" in tertiary education but none of them provide a full explanation for the phenomenon. One of the reasons could be that many boys study in vocational schools and they do not even reach higher education (Jacobs, 2002), or that girls' secondary school results are better which is supplemented by the decreasing amount of discrimination in education and in the labor market, or that girls have an increasing need for possessing larger amounts of resources (Fényes, 2009). Mickelson (1989) found four main reasons to explain the quantifiably larger number of women in tertiary education: career opportunities that are more characteristic of women are taken into consideration regarding the returns on education investment (importance of reference groups), women typically have unrealistic expectations (for example they underestimate their disadvantages on the labor market), they may have access to men of higher status, and due to their gender socialization, good performance, compliance, and better results are important for them (Mickelson, 1999. as quoted in: Fényes, 2009.). With regard to advantages and disadvantages, it would be worthwhile to look at the different phases of tertiary education. Girls' initial entry advantages – according to some indicators – demonstrably change during the training. During their studies men are generally better and more successful in activities related to an academic career (such as academic competitions, the National Student Conference, teaching assistance, being a part of a college for advanced studies). In the finishing phase, in terms of potential success on the labor market, men are better and doctoral training is also more likely to come up among their plans. (Jacobs, 1996)

FEMALE RESEARCHERS IN HIGHER EDUCATION

While the ratio of women among those with a university degree is 55% in Hungary, and the number of men and women learning at universities is balanced, women's proportion among senior managers in research and development is only 12%. The gender ratio is balanced in doctoral schools as well, but only 37% of those who earned an academic title (PhD) were women. In addition, only 13.5% of those who earned a Doctor of Science title (DSc) were women in 2008 (Csépe, 2008). By 2013 this number rose to 16.6%. Among professors men, while among senior lecturers women are over-represented (Schadt, 2011). 4,4% of ordinary members and 15,2% of corresponding members of the Hungarian Academy of Sciences (MTA) are women. (Csőke et. al. 2013). Although the proportion of female researchers in Central-eastern Europe is higher than the EU average their proportion is generally lower than that of men. One of the aims of the EU Horizon 2020 frame program is – in order to make use of the entire research potential – to raise the current number of researchers by one million, because of which it supports institutional changes aimed at creating gender equality (Csőke et. al. 2013).

Research-development and innovation have a key significance in the European Union. They have a key role in the facilitation of a higher number of female presence in the

areas of natural and technical sciences and in increasing the number of female researchers and developers in general.[6] Why are women's career paths slower as researchers has long been an important question. Why is there not even a partial dislocation between men and women in the research hierarchy? Mária Schadt and her research group studied these questions during their research conducted between 2007 and 2009 and they arrived at the following conclusions: women's presence in academic research is continuously growing and there is a positive change in their judgment but it is still true that women are at a disadvantage compared to men. There are much fewer women than men in leadership positions and even if they fill such positions they have worse mobility opportunities and the position is usually less appreciated. One of the reasons for a lack in female researchers is due to stereotypical gender roles. Women's academic career possibilities fall short of men's, their careers are much more often aborted, they can rely on their partners much less during their career and one of the biggest difficulties lie in performing family duties. It is also generally known that successful men are also successful in their private lives where the exact opposite is observable in the case of women or they have to give up on it. One of the reasons for the inequalities is that the traditional form of an academic career path is more in line with men's roles (which is supported by the spouse from the background) and its specificities (public roles, mobility) favor men. The opposition originates in the fact that women's mobility is contrary, while men's is the same as the mobility of the family, which means that women's career often results in contradictions that originate in or have an effect on the private sphere. As in other career paths, it is also true for female researchers that their disadvantages significantly grow after having children (although not exclusively because of children). Both male and female researchers agree that having children affect women adversely but they consider these disadvantages natural. Those women can perform effectively whose family provides a supportive background for their studies, for writing a dissertation or writing publications. It is also well-known that the progress of the years after getting an academic title (for example being an assistant lecturer) does not provide sufficient material resources to be able to afford a paid helper. In Hungary, the potential opportunities of part-time jobs do not help the academic progress of women either (Schadt, 2011).

Nowadays, in the 21st century, in case of a researcher career path, having a family and a career imply role conflicts, and various other roles are added to the so called "double burden" such as continuous further education, and the need for lifelong learning (LLL), which means that from this point of view we can talk about multi-burden instead. There are differences between men and women in terms of how they experience their partner's support of their career and duties at home. Women are usually less satisfied with how their husbands/partners support their career and with the ways in which they help in household duties. The phenomenon of the multi-burden, that is, the difficulties that arise from combining work and private life, is a serious problem for women. "Despite the fact that according to data from time-budget studies men take over more tasks of child rearing in the private sphere (…) female researchers claim more often than men that performing child-related tasks is an obstacle for building their careers (Schadt, 2011. 61.).

Valéria Csépe (2008) points out that in addition to the glass ceiling and the glass wall the lack of awareness of opportunities poses the biggest problem for women.

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6 See the section of the study about higher education, especially the 2012 campaign of the European Committee which attempts to popularize STEM fields among girls.

This means that they are not only incapable of enforcing their interests in their own lives, but they do not try to take action against structural inequalities in tertiary education as a group either. This is so because instead of structural reasons women trace the injustices and their unequal opportunities to individual reasons and women often choose giving up on competition as a coping mechanism (Schadt, 2011).

Schadt (2011) pointed out that women tend to mention their own gender and family duties (housework and child rearing) as obstacles of getting different positions. 70% of women and 25% of men chose these as reasons for aborting their career – taking into consideration that women's careers are more often aborted during their academic career than men. An important finding of Schadt's research is that the so-called traditional gender roles are preserved even in the families of highly qualified researchers and that women are at a disadvantage due to the rigidity of gender stereotypes even if they are under the same conditions.

In European countries female researchers usually work in the higher education and government sectors and we can find the least number of women in the business-entrepreneurship sector. In Hungary, the amount of women in the corporate sector is ¼ of men but it exceeds the EU average. Due to the fact that brain draining mostly affects men and because there are more women in the higher educational and government sectors women's research and development employment is higher in area.

2/3 of financing is directed at the business sphere and the least amount of resources – which employs women in large numbers – is available for the state and governmental sector. From the point of view of financing, women have gotten into unfavorable positions between 2004 and 2009 in most countries. Studies pointed out that there are links between research and development expenditure rates, the number of female researchers and the innovation system of the country. There is a negative correlation between the number of employed female researchers and research and development expenditure rates, which means that there are more and more female researchers in areas where the expenditure rate is lower. However, in countries where the innovation system is at a high level, higher than expected numbers of female researchers can be predicted based on the research and development expenditure per capita. In Eastern countries and in Hungary the number of female researchers is higher in all sectors (tertiary education, government, business) but the research and development expenditure per capita is lower. The number of female researchers is low in the technical, technological and manufacturing industries which can be traced back to different socialization patterns, learning paths and career visions but dropping out of the labor market due to having children, which is especially disadvantageous in these areas – due to fast changes – is also an important factor (Csőke et. al. 2013).

INEQUALITIES − THE RESULTS OF A PILOT STUDY

In our pilot study 100 respondents (72 women, 28 men) most of them working in higher education[7] have filled out our questionnaire. Most of them worked in the field of arts sciences. In terms of positions the respondents show quite a varied picture. The most over represented are associate professors (32 people), senior lecturers (19 people), assistant lecturers (18 people) and university and college professors (13 people).

7 There were few who worked at academic research institutes.

In addition, there were research fellows (4 people), assistant research fellows (3 people), PhD students (3 people), researchers (2 people) and a director, a rapporteur, a professor emeritus, a retired associate professor with habilitation and an education organizer. As for academic ranks, 48 respondents have a PhD/CSc (that makes up nearly 50% of the respondents), 19 respondents are PhD candidates (that is, they have started the qualification process), 15 respondents have habilitation, and 13 respondents have self-identified as PhD students (meaning that they are still in the process of completing their studies). A negligible number of respondents (4 people) have a DSc (Doctor of Science title), and one respondent is a corresponding member of the Hungarian Academy of Sciences.

WOMEN'S DISADVANTAGE AS RESEARCHERS

62% of the respondents think that women are at a disadvantage as researchers, 22% remained neutral in the question and 16% think that women are not at a disadvantage in the field.
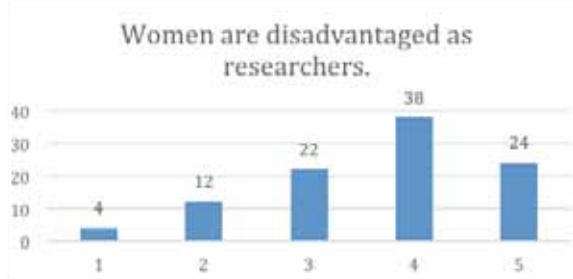
It is not only a human right question that contributes to diversification if equality between men and women is realized but it also has economic benefits. In light of this, the 34% of the respondents who could not decide are interesting. As opposed to them, 73% of the respondents think that "inequalities between men and women result in wasting talents". 17% cannot or does not want to take a stand in the question while 10% does not agree with the claim.\s

DOUBLE BURDEN

Regarding harmonizing family and career, 95% of the respondents agreed that this phenomenon is an existing problem for women while only 32% of the respondents considered it a real problem for men. 34% could not decide whether the issue of combining family life and work might exist for men (as researchers) and 34% thought that men are not affected by this problem. 83% of the respondents agreed with the statement that "Balancing the family and their career mostly affects female researchers".

Balancing the family and their career mostly affects female researchers.
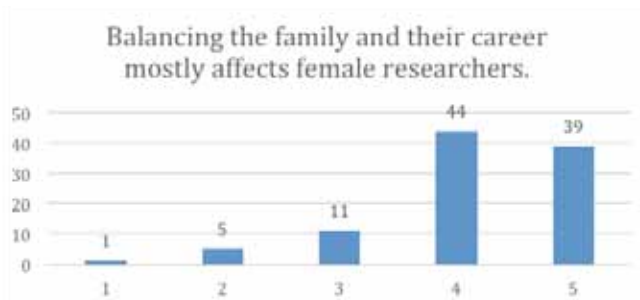
94% of female respondents and 96% of male respondents agreed that balancing work and family life is a real problem for female researchers. It is clear from these two statements that the work-family conflict is still closely connected to women in the eyes of the public even though changing gender roles imply similar problems for men as well. Nonetheless, university teaching and researching provides flexible work hours for men as well, which grants them the possibility to take part in household and family duties. Based on the pilot study we assume that these are still "women's problems" even in the highly qualified social strata. Having children or the possibility of having children is a significant question in the researcher profession too. Since raising children is primarily aligned with women's "traditional" roles, it mostly means a disadvantage for women as researchers (too). A great majority of the respondents, 81% agreed with the statement that "female researchers' progress is easier until they have children".

Regarding the balance between family and work I was mostly interested in how much time researchers spend on housework on average. 66% of researchers and teachers spends 1-2 hours on housework. 4 people (4%) said that they spend over 5 hours with housework on a daily basis. 69% of women and 75% of men spend 1-2 hours on housework every day. The ratio of women and men spending 3-5 hours on housework is approximately the same (30%-28% respectively). Breaking down the data according to genders is noteworthy especially from men's point of view. According to the data every man who works as a teacher or researcher has marked that they spend at least 1-2 hours with housework every day. Mária Schadt (2011) points out in her research that gender inequalities and the lack of balance between work and family is prevalent even in such a highly qualified stratum as researchers. However, we can assume based on the results that it would be worthwhile to conduct a study that focuses on male researchers concentrating primarily on their obstacles and difficulties.

VERTICAL SEGREGATION

We asked the respondents how they think social equal opportunities would change if there were more female teachers at universities. This is significant because the consideration of minority groups' interests greatly depends on whether they are proportionately represented in the decision-making processes. As such, it is important how the respondents think about the gender distribution of university professors which is the highest position one can have as a university teacher. 66% of the respondents think that "more female

university professors are needed in order to more effectively realize equality between men and women in the researcher profession".

23% of the respondents think that "inequalities on the level of university teachers are levelling off" which is an especially remarkable piece of data if one thinks about the phenomenon of the glass ceiling or the scissor phenomenon. 37% of the respondents are neutral in the question, 40% disagree with the statement. Only 14% of the respondents agree with the statement that "there should be a fix percentage of female university professors in a given field of study". 24% are neutral in the question and 64% do not think that there should be a fixed ratio among university professors.
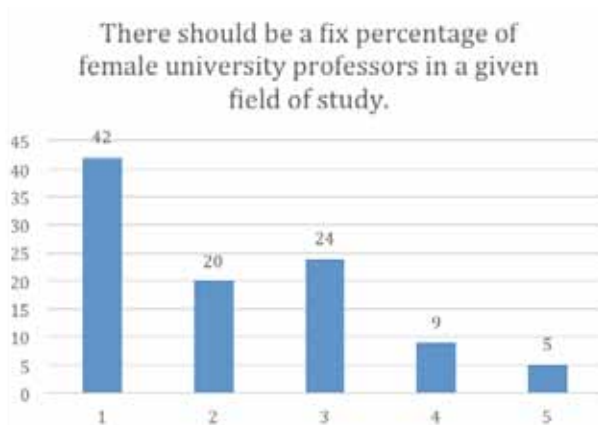
CONCLUSION

The changes in educational levels and contents reviewed in this study have either a direct or an indirect effect on women in the studied time period. Knowing the current gender inequalities, it is a valid question to ask what might be done to enable access to an equitable education for everyone. It is especially important that we cannot talk about gender inequalities exclusively since individuals are not only characterized by their gender but also

by geographical location, where they live, their social class, the socio-economic environment of their families, their age, ethnicity, sexuality etc., because of which the discussed phenomena, mechanisms and processes have a different (unequal) effect on them. One of the most important tasks is to raise awareness to the fact that gender roles are socially constructed and to realize how rigid and fixed expectations regarding gender roles narrow the opportunities of individuals (not only in education), how they define (in often pre-destinated ways) life paths and what happens when one does not act in accordance with these expectations. An equitable education would mean that everyone, regardless of social determination, would have unrestricted access to real resources.

Researching is not one of the "hot" topics of public opinion and the media. Yet it is still important to study how those responsible for producing future intellectuals think about questions of gender equality, how (or if) they catch inequalities in their own lives, whether they have tools to fight these inequalities and how much they consider this issue to be an important existential question. One of the goals of the HORIZON 2020 Framework Programme is to increase the number of researchers and especially to highlight the role of women in fields which are less popular among them (for example the STEM fields: science, technology, engineering and mathematics). In addition to the arguments on the multiplicity of view points, diversity and human rights an economic argument has appeared in the discourse, according to which gender inequalities are not favourable for the economy and they result in wasting talents.

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PREDOMINANCE OF FEMALE TEACHERS IN CENTRAL EUROPEAN SCHOOLS

Dana Hanesová

ABSTRACT

In the first part of the study, the author presents statistical data on feminization in the education systems in Visegrad (Central European) countries – the Czech Republic, Hungary, Poland and Slovakia. She then compares them with similar data from two countries with the top educational achievement of students (Finland and South Korea). Then she presents research studies on various issues associated with feminization in lower levels of education, describing pre-service teachers' aspirations and their possible reasons to follow teaching careers. The last part, which focuses on problems raised in public discussion for some time, aims to describe the complexity of the phenomenon of feminization in schools. This study supported by the European Social Fund project Mobility - Enhancing Research, Science and Education at the Matej Bel University (ITMS: 26110230082).

INTRODUCTION

Feminization – denoting a predominant number of female teachers over male teachers – is generally viewed as one of the outward signs of the crisis in or degradation of the teaching profession.[1] According to Cviková & Filadelfiová[2], the critical number for declaring feminization is when the number of female teachers crosses the 60% threshold.

Statistical data from the vast majority of otherwise highly developed school systems (with the exception of tertiary level) throughout the world show that the number of women in the teaching profession is far higher than 60% (up to 99-100% in pre-primary education).

In Western societies this 'crisis of the primary teaching profession' reached a peak in the last decade of the 20th century[3]. Recent data show that though there was a slight decrease in the number of females in education around the year 2000, a few years ago the increase in the number of females in teaching again produced (or crossed) the 60% threshold[4].

On the other hand, some researchers have suggested that the higher number of males

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1 Together with other phenomena such as the shortage of teachers, their ageing or retention. Kosová, B. Kríza učiteľskej profesie v medzinárodnom kontexte. In Kríza učiteľskej profesie – Hľadanie riešení. Banská Bystrica : MPC, 2006, p. 8; Silova, I. The Crisis of the Post-Soviet Teaching Profession in the Caucasus and Central Asia. In Research in Comparative and International Education, 2009, vol. 4., no. 4, p. 366–383.

2 Cviková, J.–Filadelfiová, J. *Rodový pohľad na školstvo : Aspekty kľúčových rizík.* Dunajská Streda: Aspekt. 2008. p. 40.

3 Kosová, B. Transformácia primárnej edukácie a vzdelávania jej učiteľov na Slovensku v zjednocujúcom sa európskom priestore. In: Doušková, A.–Porubský, Š.–Huľová, Z. (Eds.): Učitelia a primárna edukácia včera, dnes a zajtra. Banská Bystrica : PF UMB. 2010. s.38.

4 Graphs on: http://www.tradingeconomics.com; http://data.uis.unesco.org/index.aspx?queryid=178

in the teaching profession was usually the case in less developed countries.[5] This suggestion could lead to the following questions: What do the numbers of female or male teachers actually mean for the quality of education and its results? Is the prevalence of female teachers always a negative sign? What are the actual reasons for the higher number of males in less developed countries? Do they indicate any plausible patterns to be implemented in countries with high feminization? According to Neugebauer at all, "teaching is a female sex-segregated profession in literally all advanced societies, while it is male dominated in developing countries (most visibly in African countries). In the latter countries, women do not obtain higher education and are consequently not able to work as teachers – thus the share of female teachers is low. In addition, recent research has shown that, once the level of female tertiary enrolment begins to rise in a given country, having a higher percentage of women in female sex-segregated academic professions is an almost automatic consequence, as long as female preferences for traditionally female occupations do not change." [6]

We realize there are no black and white answers to these sensitive questions, as they are results of many complex historical, sociological, cultural and other factors in each country, and they would require complex research. Thus, the aim of this study is narrowed to presenting data on feminization in education in the Central European region (Czech Republic, Hungary, Poland, Slovak Republic) and comparing those data with data from two countries – Finland and South Korea. The reason we decided to compare the Central European data with Finland is quite obvious. Finland is generally considered to be one of the world's leaders in the academic performance of its (especially secondary school) students (e.g. in PISA tests) – and so is South Korea. Both Finland and South Korea also belong to a group of countries that have managed to maintain the high status of the teaching profession, considered to be one of the 'golden keys' to their success. Teaching is "Finland's 'most respected' profession … and primary school teaching is the most sought-after career"[7]. Teachers – including those teaching at primary level – are given the same status as doctors and lawyers. Primary school teaching belongs to the most popular professions among Finnish young people, "attracting the top quartile of high school graduates into highly selective university-based teacher training programmes"[8]. The 2008 Finnish Gallup study[9] revealed some interesting answers when respondents were asked to designate the most popular occupations for their wives and husbands. Finnish women voted for a) a doctor, b) a veterinary surgeon and c) a teacher followed by an architect, chef, engineer, pilot, firefighter and ICT-consultant. Men considered teaching to be the best profession

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5 Kasáčová, B.–Tabačáková, P. Komparatívne výskumy o učiteľoch – teoretické východiská, možnosti a výzvy pre úvahy o učiteľoch primárneho vzdelávania. In Doušková, A., Porubský, Š., Huľová, Z. (eds.) Učitelia a primárna edukácia včera, dnes a zajtra. Banská Bystrica : PF UMB. p. 112 - though not all of them as a rule, see also http://data.uis.unesco.org/.

6 Neugebauer, M.–Helbig, M.–Landmann, A. Working Paper : Can the Teacher's Gender Explain the 'Boy Crisis' in Educational Attainment? Arbeitspapiere – Working Papers Nr. 133. Mannheimer Zentrum für Europäische Sozialforschung, 2010, p. 1, http://www.mzes.uni-mannheim.de/publications/wp/wp-133.pdf. -

7 Centre on International Education Benchmarking. http://www.ncee.org/programs-affiliates/center-on-international-education-benchmarking/top-performing-countries/finland-overview/finland-teacher-and-principal-quality/

8 http://www.oecd.org/pisa/pisaproducts/46581035.pdf, http://www.oecd.org/edu/Finland_EAG2013%20 Country%20Note.pdf

9 Number of respondents: 1319. The resource of this information: Lecture Finnish Teacher Education by R. Jyrhämä, Department of Teacher Education, University of Helsinki, Finland (2013).

followed by the profession of a nurse, doctor, veterinary surgeon, chef, architect, researcher, ICT-consultant, masseur and hairdresser.

The question might be whether there is a statistically significant difference in the level of feminization in Finland or South Korea in comparison to the Visegrad countries. If there is no significant difference, then the generalization about feminization being the critical factor in student success would not be confirmed, at least not in the case of these countries.

The sources of statistical data on gender in teaching professions used in this study were as follows:
– UNESCO Institute for Statistics (http://data.uis.unesco.org institutions),
– OECD – its TALIS Reports (http://www.oecd.org/),
– World Bank data on http://www.tradingeconomics.com/,
– Slovak Institute for Information and Prognosis in Education (ÚIPŠ) http://www.uips.sk

Important notes: We noticed some discrepancies between data from the Slovak Institute for Information and Prognosis in Education and the data from UNESCO and the World Bank websites. The reason may be that they used data about different categories of teachers because, unfortunately, they do not always specify, for example, whether they count teachers only from state schools or also from private and church schools, and if they involved only full-time or also part-time teachers. In light of those differences, for the purpose of this study and in the case of Slovakia we corrected the international data according to the Slovak statistics. In the case of other countries we relied fully on the international data (because, for various reasons, including language, we do not have enough access to find out exactly which category is described in their statistics).

GENERAL STATISTICS ON GENDER DISTRIBUTION OF TEACHERS

The OECD Teaching and Learning International Surveys, called TALIS, for the last fifteen years have been documenting the fact that in every TALIS country most teachers – especially in pre-primary, primary and lower secondary education – have been females. The proportion of female teachers has had a tendency to decline at higher levels of education.

E.g. in 2007[10] the number of women to the number of men working in education in the EU was more than 80%. Only Bulgaria, Estonia, Hungary, Latvia, Poland and Slovenia had a higher proportion of female teachers than Slovakia. On the opposite end of the continuum there were more balanced countries (Malta 54,4%, Denmark 55,6%, the Netherlands 60,6%, Greece 60,8% of males in teaching).

A similar situation was in 2009[11] when the proportion of female teachers in primary and secondary schools in almost all EU States (e.g. Belgium, Czech Republic, Germany, Ireland, Spain, France, Cyprus, Hungary, Luxembourg, Netherlands, Poland, Portugal, Slovenia, Slovakia, Sweden, UK and Finland) was over 60%, reaching up to 80% in Bulgaria, Estonia, Latvia, Lithuania, Slovakia and Slovenia. On the contrary, in Mexico, Spain; and Turkey employed the ratio of males and females was almost equal, with over 40% being male teachers.

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10 These data according to Cviková, J.–Filadelfilová, J. Rodový pohľad na školstvo : Aspekty kľúčových rizík. Dunajská Streda : Aspekt, 2008, p. 40. ISBN 978-80-85549-82-9.

11 Creating Effective Teaching and Learning Environments: First Results from TALIS Executive summary. OECD, 2009, p. 23: http://www.oecd.org/edu/school/43044074.pdf, www.oecd.org/edu/TALIS.

However, the numbers in tertiary education reveal a different picture. "Fewer than 50% of women were reported for most European countries, the only exceptions being Latvia (57.9%), Lithuania (55.1%) and Finland (50.5%)."[12]

But gender issues in education are not associated only with the overall numbers of female teachers in the specific school systems. The ratio of female teachers increases in indirect proportion to the degree of education, meaning that the highest proportions of female teachers are at the lowest level of education – at the pre-primary level (up to 100% in many countries) and the primary level. OECD statistics have confirmed this trend. In 2009 "most lower secondary teachers (67%) in OECD countries were women, but the of male teachers at that level was higher than at the primary level".[13] Of course the proportion of female teachers varies considerably from country to country. For example, fewer than half the teachers in Japan are women but more than 80% in Estonia, Iceland and the Russian Federation are women. At the upper secondary level, the proportion of female teachers drops to 57%. Again it varies – from 28% in Japan to 73% in Canada.

According to European statistics[14] in 2011, an extremely high proportion of teachers were females in primary schools (above 90 % in many new EU states: Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Italy or Slovenia). On the contrary, a higher proportion of males was registered in Denmark, Spain, Luxembourg, Portugal and Finland, and even Turkey (nearly equal). Speaking about upper secondary level, some countries reported still very high proportion of females (Latvia, Bulgaria, Estonia), whereas others showed a bigger balance among both genders of teachers (Germany, Spain, Luxembourg, Malta, the Netherlands).

In 2012[15] and 2014[16], up to two-thirds of teachers and academic staff were women on average in OECD countries. In 2013, male teachers in England[17] formed only 3% of the nursery staff and 12 % of the primary teaching staff. The declining ratio of females inversely to the rising levels of education was documented: 100-97% females at the pre-primary level, 97% (in 2012) - 82% (in 2014) at the primary level, 67% at the lower secondary level, 57% at the upper secondary level, and 41% (in 2012) - 42% (in 2014) at the tertiary level (shown in the following Chart). The 2012 gender distribution of female/male teachers by level of education they teach can be seen in the next chart[18]:

12 COMMISSION STAFF WORKING DOCUMENT. Supporting the Teaching Professions for Better Learning Outcomes. Communication from the Commission Rethinking Education: Investing in skills for better socio-economic outcomes. Strasbourg, 20.11.2012. SWD(2012) 374 final. http://ec.europa.eu/education/news/rethinking/sw374_en.pdf

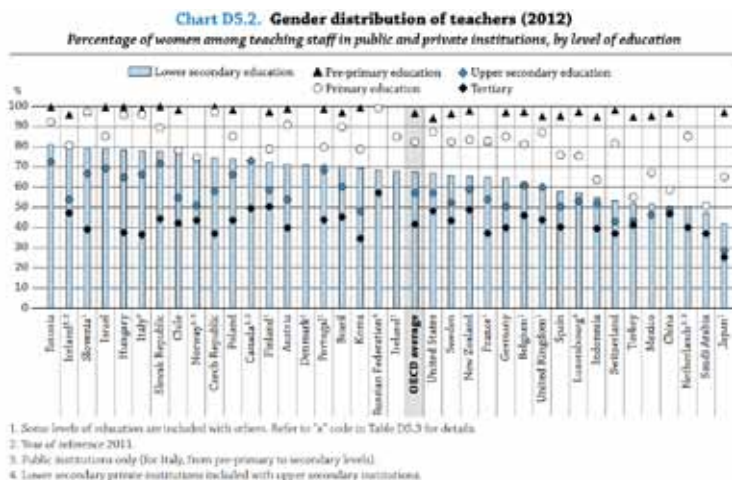13 Creating Effective Teaching and Learning Environments: First Results from TALIS Executive summary. OECD, 2009, p. 23: http://www.oecd.org/edu/school/43044074.pdf, www.oecd.org/edu/TALIS

14 http://ec.europa.eu/eurostat/statistics-explained/index.php/Education_statistics#Entry_into_tertiary_education

15 OECD (2012). Education at a Glance 2012 : Highlights. OECD Publishing, p. 68. http://dx.doi.org/10.1787/eag_highlights-2012-en,

16 http://www.oecd.org/edu/Education-at-a-Glance-2014.pdf: Chart D5.2 - p. 486.

17 MISTRY, M., SOOD, K. Why are there still so few men within Early Years in primary schools: views from male trainee teachers and male leaders?, *Education 3-13: International Journal of Primary, Elementary and Early Years Education*. 2013. DOI:10.1080/03004279.2012.759607.

18 OECD (2014). Education at a Glance 2014 : OECD Indicators. OECD Publishing. Chart D5.2 - p. 488. http://www.oecd.org/edu/Education-at-a-Glance-2014.pdf.

Chart D5.2. **Gender distribution of teachers (2012)**
Percentage of women among teaching staff in public and private institutions, by level of education

1. Some levels of education are included with others. Refer to "x" code in Table D5.3 for details.
2. Year of reference 2011.
3. Public institutions only (for Italy, from pre-primary to secondary level).
4. Lower secondary private institutions included with upper secondary institutions.

Gender distribution of teachers in Visegrad countries – comparison with Finland and South Korea[19] In the next part we focus in more detail on Visegrad countries. The following graphs show the distribution of female teachers at all levels of education in the Czech Republic, Hungary, Poland, Slovakia and Finland (except at its pre-primary level) based on data gathered by the UNESCO Institute for Statistics[20]:

Pre-primary education (% of female teachers)

Preprimary	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Czech R				99.7			99.9	99.8	99.8	99.8	99.8	99.8	99.8
Hungary					..	100	100						
Poland		96.6		97.5		97.1	97.6	98	97.9	97.9	98	98.2	98.1
Slovakia	99.9	100	99.9	99.9	99.9	99.9	100	99.9	99.8	99.9	99.8	99.8	99.8

The situation at pre-primary level (ISCED 0) is very similar in all countries – almost 100% feminized teaching staff.

Primary education[21] (% of female teachers)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Czech R	84.4	84.4	84.2	84	83.7	83.6	94.7	94.2	97.6	97.6	97.5	97.5	97.2
Finland	71.7	73.2	74.2	74.8	75.5	76	77	77	78.3	78.5	78.6	78.8	78.9
Hungary	84.9	86.2	85.7	84.3	95.9	95.9	96	96	95.9	96.1	95.9	95.8	95.7
Poland	..	83.5	..	84.7	..	84.5	84.3	84.3	83.8	83.7	83.7	85.1	85.3
Slovakia	90.2	90.1	90.2	89.3	88.6	88.5	88	88.4	88.5	88.56	88.7	88.75	88.9

19 http://data.uis.unesco.org/index.aspx?queryid=178 , http://www.msmt.cz/vzdelavani/skolstvi-v-cr/statisti-ka-skolstvi/genderova-problematika-zamestnancu-ve-skolstvi

20 http://data.uis.unesco.org

21 http://data.uis.unesco.org/index.aspx?queryid=178, Slovak data from the Slovak http://www.uips.sk/prehla-dy-skol/statisticka-rocenka---zakladne-skoly (The Slovak Institute for Information and Prognosis in Educa-tion) – counting internal and external teachers from primary state schools.

All Visegrad countries show a high degree of feminization at this level (over 80%). The Finnish data show 10% smaller numbers, but feminization remains evident in the percentage of female teachers (over 70%). The data about Finland, similarly to other countries, show signs of a slight feminization trend (7% in 12 years). Some data need deeper explanation (Hungary, 2004 and the Czech Republic, 2006), as they show 10% growth of feminization during one year (supposedly due to school reform and changes in the structure of education).

Lower Secondary Education[22] (% of female teachers)

|	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Czech R	..	84.1	82.8	82.1	81.9	81.8	73.6	78.1	74.1	74.1	73.9	74.2	74.4
Finland	71.1	71.1	71.4	71.7	71.8	71.9	..	72.9	71.2	71.4	72	72.3	72
Hungary	84.5	84.2	82.7	83.3	77.9	78.1	78.1	78.3	78.6	78.5	78.5	78.5	78.4
Poland	..	73.9	..	74.3	..	73.3	73.4	74.1	74.4	74.2	74.4	73.9	73.9
Slovakia	6	76.5	76.9	75.6	75.7	76.2	76.3	76.6	76.7	76.7	76.7	76.9	77.1

The situation at the lower secondary level (ISCED 2) is similar to the previous level, including the comment about the Hungarian data for 2004 and Czech data for 2006. With those exceptions, the data seem to have stabilized around the same percentage, not oscillating as in the case of ISCED 1. All Visegrad countries employ at least 10% more male teachers at this educational level. Finnish data for this level are similar to the data for the ISCED1 level, not showing signs of growing feminization. The Finnish ratio of female teachers at this level is comparable to the numbers in Visegrad countries.

Before moving on to higher educational levels, here are more details regarding primary and lower secondary level in Slovakia – the country which the author of this paper comes from. Similarly to other EU countries[23], the feminisation of the teaching staff has been a trend in Slovakia. A look deeper into the history of measurement of the number of primary teachers showed that this number decreased over previous years to 13,396 primary teachers in 1980. The proportion of women in that period was about 92.26% of the total number of teachers. In 2000, the number of teachers rose to 15,859, with 90,17% being women. In 2008, the number of teachers again shrank to 14,015 with 88.5%[24] and 89.23 in 2009. The following chart with the total numbers of teachers in 2004, 2008 and 2012 shows that the number of teachers (proportional to the declining number of schools) dropped between 2004 and 2008:

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22 http://data.uis.unesco.org/index.aspx?queryid=178, Slovak data from the Slovak Institute for Information and Prognosis in Education http://www.uips.sk/prehlady-skol/statisticka-rocenka---zakladne-skoly – counting internal and external teachers from primary state schools.

23 COMMISSION STAFF WORKING DOCUMENT. Supporting the Teaching Professions for Better Learning Outcomes. Communication from the Commission Rethinking Education: Investing in skills for better socio-economic outcomes. Strasbourg, 20.11.2012. SWD(2012) 374 final. http://ec.europa.eu/education/news/rethinking/sw374_en.pdf

24 Kasáčová, B.–Tabačáková, P. Komparatívne výskumy o učiteľoch – teoretické východiská, možnosti a výzvy pre úvahy o učiteľoch primárneho vzdelávania. In Doušková, A.–Porubský, Š.–Huľová, Z. (Eds.): Učitelia a primárna edukácia včera, dnes a zajtra. Banská Bystrica : PF UMB, 2010, p. 112. Based on the statistics by Slovak Institute of Information and Prognosis in Education.
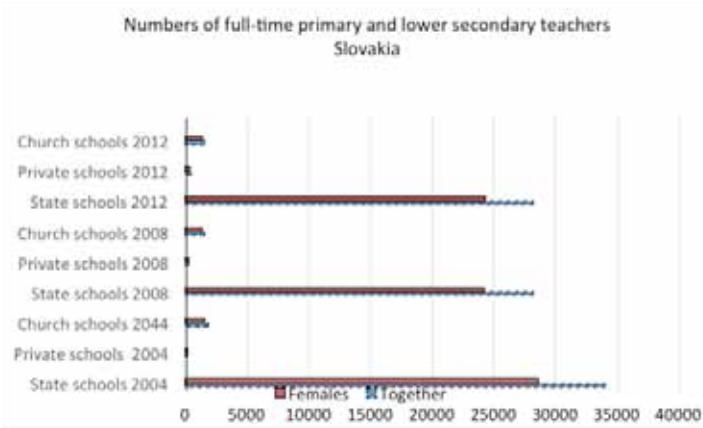
The next table and chart present data about the percentage of primary and lower secondary female teachers. These data come from the Slovak Institute for Information and Prognosis in Education,[25] and they cover the period from 2003 - 2014:

Slovakia	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Primary teachers	89,3	88,6	88,5	88	88,4	88,5	88,56	88,68	88,75	88,9	88,8	89,1
Lower secondary teachers	75,6	75,7	76,2	76,3	76,6	76,7	76,7	76,7	76,9	77,1	77,09	77

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25 http://www.uips.sk/prehlady-skol/statisticka-rocenka---zakladne-skoly
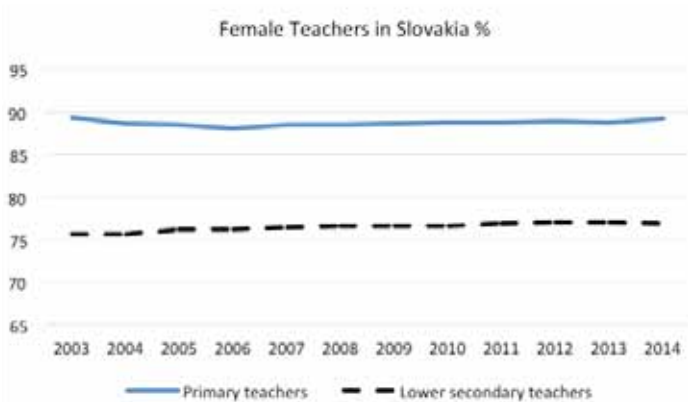
Upper secondary education[26] (% of female teachers)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Czech R	..	53.2	55.2	55.5	55.9	56.3	57	59	58.3	58.5	57.8	58	58
Finland	56.4	57.3	56.3	57	57.2	57	..	57.5	57.7	58.2	57.9	58.3	58.5
Hungary	59.4	60.1	62.1	62.1	63.7	63.9	64.4	64.5	64.8	64.8	64.5	64.9	64.8
Poland	..	60.9	..	64	..	65.7	65.7	66.5	66.4	66.6	66.3	66.1	66.2
Slovakia	66.6	67.3	67.5	68.2	76.8	69.2	69.2	70.3	70.4	71.5	71.6	71.4	71.8

The percentage of female teachers at the upper secondary level (ISCED 3) in all these countries is on average about 15% lower than at ISCED2. There is a slow tendency to growth, averaging 3 - 5%, in all the mentioned countries. The final data are comparable in the Czech Republic and Finland, with the Hungarian and Polish numbers being slightly (5%) higher. Slovakia seems to have the largest number of females at this level (5% more). According to the definition of feminization (in the introduction), in Finnish upper secondary education there is a gender balance (under 60% of female teachers). The next graph shows this gradually growing tendency in all countries between 2000 - 2012:
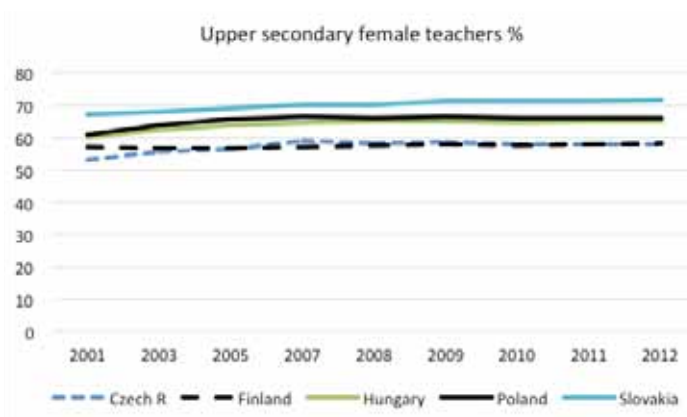
According to other resources (the Portal of the Statistical Office quoted in Cviková & Filadelfiová[27]), in 2007 the second most feminized type of schools (after primary schools) in Slovakia were grammar schools with 74,3% female teachers, but other secondary types of schools had also more than 60% female teachers.

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26 http://data.uis.unesco.org/index.aspx?queryid=178
27 Cviková, J.–Filadelfiová, J. *Rodový pohľad na školstvo.* Dunajská Streda : Aspekt, 2008. 114 s.

Tertiary education (% of female teachers)[28]

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Czech R	38.4	39.9	..	39.3	..	40.1	37.6	..	..	..	..	36.2	37
Finland	..	45.7	33.9	34.3	39.3	..	..	..	..	..	..	..	37.1
Hungary	42.6	49.3	48.2	47.9	42.8	44.7	44.3	44.7	49	48.9	47.3	47.2	48
Poland	..	..	..	..	..	..	41.5	42	42.5	42.9	43.1	43.3	43.6
Slovakia	38.4	38.5	42.3	39.6	40.2	41.9	42	43.3	43.8	43.5	43.7	44	44.3

As we noted earlier, tertiary education is the only level with a prevalence of male teachers in all investigated countries, including Slovakia. From the perspective of feminization, this is a good sign that there is more balanced ratio. On the other hand, this confirms the statement that more women work at lower levels (from whatever reasons). Unfortunately, the measurement of UNESCO statistics of university teachers was not complete, so in the case of the Czech Republic or Finland it is not possible to make any generalizations. Polish, Hungarian and Slovak data show a slightly growing tendency of numbers of females (about 2-3% in 7 years) in university teaching staff. In Finland the number of women in tertiary education in 2012 was smaller than in Slovakia or Hungary.

Of course, there is a differentiation between the numbers of females in various university positions. E.g. in 2007, according to the Slovak Institute for Information and Prognosis and Education, quoted in Cviková and Filadelfiová[29], 20.6% of professors and 35.6% of associate professors were women. These numbers grew from 2000 - 2007 to almost 10% (associate professors) and 13% (professors).

To sum up the scope of feminization in Finnish schools, the next graph summarizes the percentage of females at all levels based on UNESCO and the World Bank data[30]:

Finnish female teachers %

Feminization is growing at primary level of Finnish schools, in 2011 it reached 78.8%. The next graph[31] shows female teachers as a percentage of all primary education teachers (including full-time and part-time teachers):
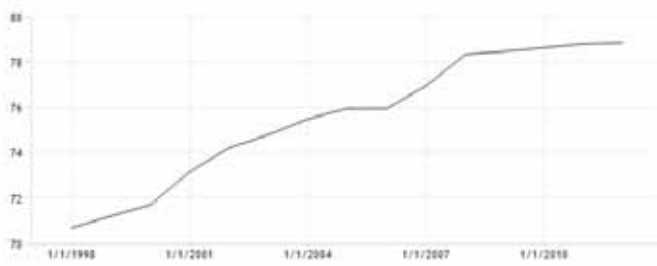
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28 http://data.uis.unesco.org/index.aspx?queryid=178
29 Cviková, J.–Filadelfiová, J. *Rodový pohľad na školstvo*. Dunajská Streda : Aspekt. 2008. p. 63.
30 http://data.uis.unesco.org/index.aspx?queryid=178
31 http://www.tradingeconomics.com/finland/primary-education-teachers-percent-female-wb-data.html

So it is possible to generalize that both the primary and lower secondary schools in Finland are feminized, and at the primary level this seems to be a growing trend. Feminization at this level is about 10% lower in Finland than in other investigated countries. Numbers of female teachers at lower secondary level are not changing much (about ¾). The last two educational levels are not feminized. In a brief 2014 document, Teacher Education in Finland, the Finnish Ministry of Education and Culture described the situation in the following way: "Finland's high level of education and competence is based on high-quality teacher education. The profession of a teacher is regulated, and the qualifications required from teachers are defined in legislation … It is predominantly female profession … Out of teachers working in basic education, more than 70% are women; the corresponding figure for vocational education and training is slightly more than a half."[32]

HEADING?

We decided to compare the numbers of female teachers from Visegrad countries with one more country with high students' achievement (in PISA) – with South Korea. The reason for doing so is similar as in case of Finland: to find out if the data about South Korean teachers could move us forward to some answers to our introductory questions.

The percentage of females in South Korea can be seen in the following chart and graphs:

South Korea[33]	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
primary	70.3	71.6	72.2	73	74	75	75.9	76.6	77.2	77.5	77.9	78.2	78.7
lower secondary	59.7	61	61.9	63	63.6	64.4	65	65.5	66.3	66.9	67.5	68.8	69.4
upper secondary	0.5	32	36.2	37.4	38.3	38.9	39.9	41.1	42.6	43.9	45	46.7	48
tertiary	26.9	27.1	28.1	28.8	29.3	30.5	30.9	31.5	32.4	33	33.8	34.1	34.5

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32 *Teacher education in Finland*, Ministry of Education and Culture, 1/2014
33 http://data.uis.unesco.org/index.aspx?queryid=178
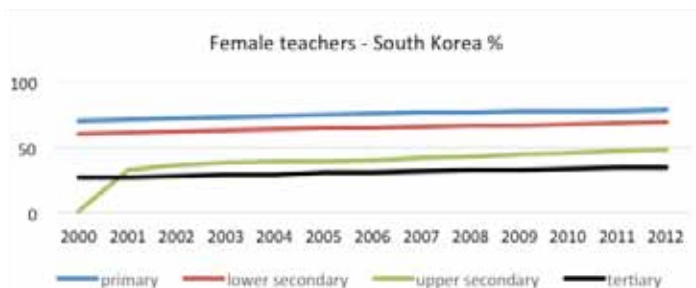
Though there is an increase in the proportion of female teachers in all educational levels in South Korea, feminization (over 60% females) is evident only at two levels: a) at the primary level – a situation comparable with Finland (about 10% lower than in Visegrad countries); and b) at the lower secondary level – where the percentage of female teachers is slightly higher than 60%. Both upper secondary and tertiary education show higher proportions of male teachers: a balanced ratio (about 52%) at ISCED 3 and about 2/3 at universities. The critical prevalence of women is at the primary level, which is also evident in the following graph[34]:
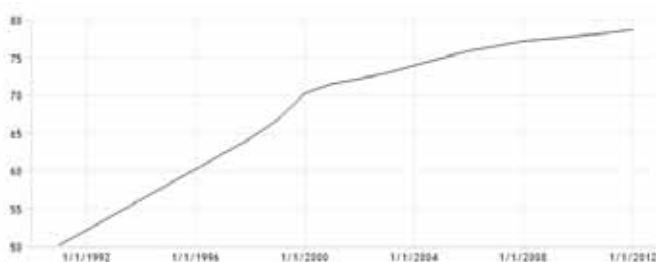
There are also growing numbers of female teachers at other levels in South Korea. All the data mentioned so far indicate that highest feminization level (after the pre-schools) in all Visegrad countries as well as in Finland and South Korea is in primary education. Feminization exists also at lower-secondary schools in all these countries, but the ratio of females is almost 10% lower. In other words, feminization at the lower educational levels is present also in countries with top achievement of students (in PISA tests).

MOTIVES OF MALES AND FEMALES DECIDING ON A TEACHING CAREER

Besides statistical data on feminization, there has been a lot of effort put into investigations of the factors leading to feminization in Slovakia (and partially in the Czech Republic)[35] especially by searching motives for studying/entering the teaching profession.

34 http://www.tradingeconomics.com/south-korea/primary-education-teachers-percent-female-wb-data html
35 Due to the common past of these two countries. Not only in Slovakia, but also in the Czech Republic "the dominant proportion of women is an undeniable statistical fact." Gőbelová, T. Profese učitele primárního vzdělávání v České republice. In: Kasáčová, B.–Cabanová, M. (Eds.): Učitel v preprimárnej a primárnej edukácii. Teória, výskum, vývoj. Banská Bystrica : PF UMB, 2009. p. 64–65.

Already in 1974, Špendla[36], in his research of teachers' motives for choosing a teaching career, found that the most important motive was respondents' love for children, and a desire to work in a children's environment. His participants' responses explicitly showed that teaching was considered to be a job suitable for women. The desire to educate emerged as the second most important motive.

The biggest category of responses in most research studies about these motives was the desire to work with and teach children, a decision often made in childhood (15% in Porubská, 1994, 51.4% in Kasáčová, 1995, 2002, 2004). According to Gavora (2001, 2002) the most important factors were the family environment during childhood; then personality features of the students; experiences from own schooling; role models; key people; and life crises.

In 2009, a Slovak psychologist, Kariková[37] repeated Špendla's research from 1974 with her group of education students. While researching their spontaneity in deciding to enter the teaching profession, as well as some positive and negative aspects of the teaching profession, she confirmed rising levels of feminization, the declining status of the teaching profession, and growing pressure on teachers from negative features of the teaching profession. She compared the proportion of female teachers in 2009 with that of 1974. It appeared to be 10% higher in 2009, confirming the growing trend of feminization in education. Analysis of respondents' answers showed stronger inclination of females to choose the teaching profession. In connection with these data, an interesting finding emerged from Krystoň's research (1994) into the opinions of upper secondary school students and their decision to study teacher education. Krystoň's participants considered teaching to be the third most attractive profession – not only by females (54%) but also by 39% male students.

Kariková[38] researched several angles of feminisation in the teaching profession, e.g. initial motivation, adaptation, performance, stamina, typical signs of primary teacher's personality (1994, 2004, 2005). She found out that the male respondents, especially those who were married or going to get married, did not plan to start a teaching career but wanted to find a more profitable job. The fact that the groups of future primary teachers at Faculties of Education in Slovakia have consisted almost entirely of female students was reflected also in several research studies on teachers in Slovakia.

The highest commitment to start teaching and to persevere in teaching was reported by females coming from rural areas and smaller towns whose parent was a teacher (Kasáčová[39], 2004). Similar results were revealed by a Czech researcher (Havlík[40], 1995) showing that the male teacher education students in his group were also less motivated to start teaching after graduation.

In her overview of other research studies on motives for applying into teacher education in Slovakia (and the Czech Republic) and especially in her own investigation in 2013/14, Hanesová[41] described the prevalent desire to study teaching education as expressed as an answer to an open question "Why did you choose to study in this study

36 Špendla, V. *Učiteľ a učiteľská profesia.* Bratislava : SPN, 1974.

37 Kariková, S. Reflexia učiteľskej profesie v rozpätí 35 rokov. In: *Acta Universitatis Matthaei Belii* (No. 12). Banská Bystrica : PF UMB, 2010, p. 57–70.

38 Kariková, S. *Vekové premeny učiteliek 1. stupňa základných škôl.* Banská Bystrica : PF UMB. 2005.

39 Kasáčová, B. *Učiteľská profesia v trendoch teórie a praxe.* Prešov : MPC, 2004. p. 45.

40 Havlik, R. Motivace k učitelskému povolání. In: Pedagogika. 1995. Vol. 45, No. 2. p. 154–163.

41 Hanesová, D. Teacher recruitment in Slovakia. In: *Teacher education case studies in comparative perspective.* Debrecen : Center for higher education research and development. 2014. p. 107–130.

programme?". Almost 50% of the respondents (100% females) decided for the teaching profession because they considered it a "beautiful, meaningful, satisfactory profession … Similar number of respondents were attracted to work with children, take care of them and organize them … For them teaching had been a fulfilment of their childhood dream, their life mission, a natural decision with a potential to change the conditions of children from socially deprived areas … For them to be a teacher grew out of their love to teaching and a chance of having an influence upon people's lives … Almost half of the respondents considered positive attitudes to children to be the cause of their studying TE/being a teacher … Another group (up to 20%) decided to study teaching because of the potential for actualization of their natural ability, talent, hobby, love of working with people, and desire to communicate or to manage people."

Another important data from Hanesová's research[42] (2014) was that one third of respondents decided for this profession as a direct influence of another person/s: observing their own teachers (10%); helping younger siblings and other children (17%); having teachers in the family – parents, grandparents, uncles and aunts (10%). One third of the respondents valued the potential of personal growth and self-realization in the teaching profession as they considered it to be "a creative dynamic profession bringing adventure, friends, a right to manage, potential for personal change and growth, a good opportunity to learn from others, enjoyment in the teaching process; fulfilment of love to study or an interest in the subjects themselves (13%). It is a good combination how to fulfil one's love to some subjects and to teaching." About 10% of Hanesová's respondents also mentioned "the utilitarian advantages of the teaching profession: a comfortable job with enough free time, vacations, good working hours, suitable for perspective mothers, easy recyclable preparations", though others commented on the fact that teaching is an insufficiently financially rewarding profession.

OTHER RESEARCH ON TEACHERS FROM THE GENDER POINT OF VIEW (IN CENTRAL EUROPE)

In 2008, an interesting publication about research ASPECT in gender issues in education in four countries[43] (the Czech Republic, Poland, Slovak Republic and Ukraine) was published:
– The Czech researchers found out that in 2008 the gender distribution of students at college-type of upper secondary education (so called grammar schools) and other secondary schools matched the gender distribution of teachers at those feminized schools. Male teachers were more often employed in technical and vocational schools. "Work in education sector is less financially attractive in general, but, even here, women earn less than men".[44] According to the opinions of respondents, female teachers teaching at elementary school were "likely to become associated with women … being seen as a job suitable for

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42 Hanesová, D. Teacher recruitment in Slovakia. In: *Teacher education case studies in comparative perspective.* Debrecen : Center for higher education research and development, 2014. p. 107–130.
43 Gender Issues 2008 : Gender Sensitive Education in the Czech Republic, Poland, Slovak Republic and Ukraine. Warszawa : Heinrich Böll Stiftung, 2008. 170 p.
44 Ciprová, K.–Kynčlová, T.–Smetáčková, I.–Sokačová, L. Gender Aspects of Education in the Czech Republic. In: Gender Issues 2008 : Gender Sensitive Education in the Czech Republic, Poland, Slovak Republic and Ukraine. Warszawa : Heinrich Böll Stiftung, 2008. p. 18. 36.

women rather than for men … connected with raising children and the transferral of the cultural patterns … traditionally ascribed to women." In 2008 the Czech school was "a gender-segregated space leading to reproduction of gender stereotypes".

− The Polish researchers Dzierzgowska and Rutkowska[45] described the Polish school system in 2008 as a pyramid at the base of which there were the biggest numbers of women (kindergarten and primary teachers). The higher educational level, the smaller numbers of teachers. "At the top (academic) level there are the fewest women.

− The Ukrainian study by Kisselyova & Musiyenko[46] reported that the education system in Ukraine in 2008 was feminized and gender-insensitive (with 98,67% of women in pre-primary education).

− According to the views of the Slovak reporters (Cviková & Filadelfiová[47], 2008), teachers were "the key risk factor in fostering gender equality in the heavily feminised education system". The teaching profession seemed to "reinforce the stereotypical gender division of labour". As research ASPEKT (2008) – and others[48] – showed that teachers themselves have regarded the working arrangements and conditions of the teaching profession to be real advantages of this profession. Thus they expressed their preference to spend more time in their homes with their own children than in professional development. This and other issues (for example, that female teachers do not consider themselves but their husbands to the breadwinners) indicate that "the gender bias in the teaching profession reinforces gender stereotypes of teachers – in relation to themselves and to their students"[49].

A different but interesting view on the choice of the teaching profession by male and female applicants was presented by a Slovak expert Čižmáriková (2015)[50]. In her research study, Čižmáriková provided insight into issues of value orientation of teacher education (TE) students in Ethics Education. She compared male and female preferences and found interesting differences between these two groups that may help show why fewer males than females apply for the teaching profession. While female TE students attributed the highest significance to the value of self-transcendence, male students ascribed the greatest importance to the value of stimulation, self-determination and hedonism, which are values belonging to the category 'openness to change'. Women especially underlined the quality of interpersonal relationships and harmonious relationships to the world, peace, tolerance, the welfare of others, caring, honesty, loyalty, forgiveness and responsibility. In contrast, male students prefer exciting challenges, change, movement in life, adventure

45 Dzierzgowska, A.–Rutkowska, E. (2008): Blind to Gender: Equality Education the Polish Way. Report on Equality, Education in Primary, Grammar and Secondary Schools. In: *Gender Issues*. 2008 : Gender Sensitive Education in the Czech Republic, Poland, Slovak Republic and Ukraine. Warszawa : Heinrich Böll Stiftung. p. 74.

46 Kisselyova, O.–Musiyenko, N. (2008): Gender-Sensitive Education in Ukraine: Achievements, Gaps and Challenges. In: *Gender Issues.* 2008 : Gender Sensitive Education in the Czech Republic, Poland, Slovak Republic and Ukraine. Warszawa : Heinrich Böll Stiftung. p. 129–162.

47 Cviková, J.–Filadelfiová, J. (2008): Education through the Prism of Gender. Aspects of Key Risk. In: *Gender Issues.* 2008 : Gender Sensitive Education in the Czech Republic, Poland, Slovak Republic and Ukraine. Warszawa : Heinrich Böll Stiftung. p. 119.

48 Hanesová, D. (2014): Teacher recruitment in Slovakia. In: *Teacher education case studies in comparative perspective*. Debrecen : Center for higher education research and development. p. 107–130.

49 Cviková, J.,–Filadelfiová, J. Education through the Prism of Gender. Aspects of Key Risk. In: *Gender Issues.* (2008): Gender Sensitive Education in the Czech Republic, Poland, Slovak Republic and Ukraine. Warszawa : Heinrich Böll Stiftung. 2008. p. 118.

50 Čižmáriková, K. Hodnoty budúcich učiteľov etickej výchovy. In: Hanesová, D. Research – Education – Evaluation. Banská Bystrica: PF UMB, 2015. p. 65–72.

and to some extent risk. The value of hedonism was assigned by males as the second most important value, together with the value of self-determination. Females placed hedonism to the 6th rung along with the value of success. To sum up, for male TE students the statistically most significant values are self-determination, hedonism, security, benevolence, universalism, achievement. The second group of values consisted of the values of tradition and power. Female TE students formed three groups of statistically significant values. For them the most important values in life were benevolence, universalism, self-determination and safety.

DISCUSSION AND CONCLUSION

Feminization in education is not a new phenomenon in European or North American society, but it has long historical roots. Lather (1987)[51] and Grumet (1995)[52] studied the status of the teaching profession "as an extension of domestic labour". According to Grumet (1988 in 2000), "feminisation of teaching took place around the time of the Industrial Revolution, the practice of hiring women to replace the man who had been the school masters (but who were leaving the villages for employment in the cities) was rationalised with a sentimental celebration of women' s maternal gifts … Women were praised for the self-sacrifice and for their modesty and these features were considered to be traits of the proper teachers."[53] According to Neugebauer et al. (2010)[54], "in the United States … the teaching profession became a predominantly female profession as early as in the late 19th century, initial efforts to recruit more men into teaching were made between the two world wars." The primary reason for doing so was to avoid the "feminization of boys, who would be less able to develop their masculinity without appropriate role models" during their schooling.

Since then scholars have engaged in extensive discussions and research on the issue of feminization in education in their effort to comprehend its reasons, to explain it and to make twofold suggestions – either how to raise the social status of the teaching profession and thus more successfully recruit men into the lower educational levels or how to arrange better working conditions for more women to teach at the tertiary level – in the universities. For example, researchers from Nottingham Trent University decided to investigate the stereotypical opinion that working with young children is a "woman's profession". They found out that men were being put off working in primary schools because of negative stereotypes[55] "

51 Lather, P. (1987): The absent presence: Patriarchy, capitalism, and the nature of teacher work. In: *Teacher Education Quarterly.* Vol. 14. No. 2. p. 25–38.

52 Grumet, M. (1995): At home and in the classroom: The false comfort of false distinctions. In: M. Ginsberg (Ed.): *The politics of educators' work and lives.* New York : Garland Publishing. Inc. p. 55–72. According to: http://files.eric.ed.gov/fulltext/ED432972.pdf.

53 Grumet, M., McCoy, K. (2000): Feminism and Education. In Moon, B., Brown, S., Ben-Peretz, M. (Eds.): *Routledge Internation Companion to Education.* London : Routledge. p. 431.

54 Neugebauer, M.–Helbig, M.–Landmann, A. (2010): Working Paper : Can the Teacher's Gender Explain the 'Boy Crisis' in Educational Attainment? Arbeitspapiere – Working Papers Nr. 133. Mannheimer Zentrum für Europäische Sozialforschung. p. 1, http://www.mzes.uni-mannheim.de/publications/wp/wp-133.pdf. -

55 Mistry, M.–Sood, K. (2013): Why are there still so few men within Early Years in primary schools: views from male trainee teachers and male leaders?, Education 3–13.: International Journal of Primary, Elementary and Early Years Education. DOI:10.1080/03004279.2012.759607.

combined with fears that they would be falsely labelled as paedophiles",[56] though according to research the same men in the research by Nottingham Trent and Bedfordshire universities were confident to work with young children (2013[57]). One British observer has concluded that a "number of studies have shown that males find teaching unattractive or to be too female friendly or that their maleness always attracts attention from others or the focus is on males as role models (Skelton 2007; Brownhill 2010). But there are very few studies to substantiate these assertions for males entering the EY sector"[58].

Gender segregation as in an issue in choosing career was also an object of research supported by the Slovak research APVV Agency, carried out by Jesenková[59], based on several studies, e.g. by Czech sociologist Čermáková. Using historical examples, she stated that when a profession was quite accessible to women, the impression was given "that it was an easy job or that lower professional preparation was needed", which resulted in "dropping down the financial rewards as well as the social status of that profession". So "feminization of schooling seemingly appears to be one of the reasons of deprofessionalization of the teaching profession".

Slovak authors J. Cviková and J. Filadelfiová[60] completed research called "ruzovyamodrysvet.sk" (pingandblueworld)[61] on gender stereotypes in education in Slovakia. They pointed to the danger of such perceptions of the problems in the school system, saying that the quantitative feminization itself – the rising number of women working in schools – was not the main problem. According to them, the main issue is the gender hierarchy in rewarding one's work. Therefore they suggest that researchers focus more on the fact of "disadvantaging and belittlening women instead of simply identifying feminization as the problem"[62].

Neugebauer et al. also connect feminization with the need of self-realization, free choice of one's career. They argue that "the current share of female teachers at school may be deduced from women's educational opportunities in past decades and their opportunities of participating in the labour market today … In sum, not the gender of the teacher is relevant for the increasing educational success of girls. Rather, equal gender opportunities in a given country encourage girls to realize their academic potential, while at the same time making it more likely for women to become teachers." [63]

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[56] http://www.telegraph.co.uk/education/educationnews/9849976/Teaching-in-primary-schools-still-seen-as-a-womans-job.html

[57] Mistry, M.–Sood, K. (2013): Why are there still so few men within Early Years in primary schools: views from male trainee teachers and male leaders?, Education 3-13: *International Journal of Primary, Elementary and Early Years Education.* DOI:10.1080/03004279.2012.759607.

[58] http://www.telegraph.co.uk/education/educationnews/9849976/Teaching-in-primary-schools-still-seen-as-a-womans-job.html

[59] Jesenková, D. *Rodová segregácia v príprave na povolanie.* APVV Project, p. 3.

[60] Cviková, J.–Filandelfiová, J. (2008): *Rodový pohľad na školstvo : Aspekty kľúčových rizík.* Dunajská Streda : Aspekt. 114 s.

[61] Gender Sensitisation in the Educational Process at Elementary and Secondary Schools as Preparation for Futre Job Desegregation (Programme of the European EQUAL Community Initiative) in cooperation with the Institute for Public Affairs and the FOCUS agency, Aspekt.

[62] Cviková, J.–Filandelfiová, J. (2008): *Rodový pohľad na školstvo : Aspekty kľúčových rizík.* Dunajská Streda : Aspekt. p. 3.

[63] Neugebauer, M.–Helbig, M.–Landmann, A. (2010): Working Paper : *Can the Teacher's Gender Explain the 'Boy Crisis' in Educational Attainment?* Arbeitspapiere – Working Papers Nr. 133. Mannheimer Zentrum für Europäische Sozialforschung. p. 1. http://www.mzes.uni-mannheim.de/publications/wp/wp-133.pdf. -

It appears that the discussions and polemics about the imbalance of females and males in education have uncovered several unsolved issues, e.g.:

– reasons for the low social status of teachers and the low prestige of the teaching profession; overlooking the work of teachers by society and not comprehending the burden of work of the teachers by society; feminization as one of the reasons of low professional self-awareness and of lower social appreciation; more women working at the lower levels of education, often in more demanding socially disadvanted areas with lower salaries;

– gender stereotypes about the relative social status of female and male teachers as hidden curricula in schools – the attitudes and the behaviour of teachers to boys and girls may be a source of their attitude towards teaching profession[64];

– agreement/disagreement with the traditional opinion that the man is the breadwinner of the family[65] and so the low wages (far below the national income average) of teachers prevent men from entering and staying in the teaching profession[66];

– opinion that the teaching profession is particularly suitable for women due to the organization of working time facilitating the 'juggling family and professional life' of the family and professional life – thus a lot of "female teachers do not perceive gender inequalities in their profession" [67];

– the inner dynamics inside the teaching staff in one school – female school principals are often hesitant to accept male teachers because they fear losing their position due to the presence of the man.

As these points have indicated, feminization does not have a straightforward solution; it is a complex societal issue. Observing the realistic and positive approach of how, for example, Finland raised the social status of teachers and how it treats feminization might be encouraging also for other countries. Our suggestion is that this phenomenon should be studied more thoroughly and diligently from several angles. The potential changes must be implemented patiently, in ways that are sensitive to local historical developments in education, and that make every effort to meet the individual age, gender and needs of

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64 Neugebauer, M.–Helbig, M.–Landmann, A. (2010): Working Paper : *Can the Teacher's Gender Explain the 'Boy Crisis' in Educational Attainment?* Arbeitspapiere – Working Papers Nr. 133. Mannheimer Zentrum für Europäische Sozialforschung. p. 1, http://www.mzes.uni-mannheim.de/publications/wp/wp-133.pdf. - The authors examined whether teacher gender in fact had an impact on the academic achievement of male and female students. They questioned the hypothesis about feminization causing the potential lack of role models for boys and then subsequently in fewer male applicants for teaching profession. Also they investigated next hypothesis that the growing "feminization" of the teacher profession might explain the educational disadvantages for boys and the success of girls in schools. The authors challenge this argumentation by saying that there was a need to ask how cross-country differences regarding the percentage of female teachers came about in the first place, and why the total share of female teachers has risen over the past decades (p. 20).

65 This point was a special agenda and research focus of the European EQUAL Community Initiative funded by the European Social Fund, initiated by ASPEKT (www.aspekt.sk) and conducted by the Institute for Public Affairs and FOCUS, 2005 – 2008 (www.ivo.sk, www.focus-research.sk). Its findings carried out as part of the project ruzovyamodrysvet.sk (pinkandblueworld.sk) - Gender Sensitization in the Educational Process at Elementary and Secondary Schools as Preparation for Future Job Desegregation described In: FILADELFIOVÁ, J. *Učiteľské povolanie : Aspekty rodovej rovnosti v škole.* Dunajská Streda : Aspekt, 2008. Aspekt – series of publications as a result of cooperation of partners' organizations from the Czech Republic, Poland, Ukraine, Slovakia and the Heinrich Böll's Foundation. See: http://archiv.aspekt.sk/download/Rodovy%20pohlad%20na%20skolstvo.pdf; http://www.ruzovyamodrysvet.sk/chillout5_items/1/0/3/5/1035_fd805f.pdf; http://www.esfem.sk/UserContent/File/jesenkova_rodova%20segregacia.pdf

66 In Slovakia the salary of teachers reaches half of the sum that the other university graduates in Slovakia get.

67 as, on the other hand, "in Slovakia, the family and household is primarily a women's " (Research EQUAL -ref. No. 49).

pupils, students and teachers. Some researchers, for example, have recommended that male teacher education students should be encouraged to undertake work placements in primary schools – under the leadership of an existing male head teacher – to give them a positive experience of working with young children. Generalizations or stereotypes do not help; deep scientific analysis and evaluation, and then persuasion and good modelling might be a successful way forward.

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WORK-LIFE BALANCE OF FEMALE PHD STUDENTS IN ENGINEERING

Veronika Paksi

ABSTRACT

In spite of tremendous efforts, women are still under-represented in science.[1] Their proportion compared to men is already lower in tertiary education and it further decreases in Research and Development (R&D) where we hardly find any women in top positions (She Figures, 2012). Reasons are multifaceted. Problems often start in the educational system, where women are often discouraged from choosing a science career. Their interest towards science starts to decrease during elementary school. Later, even those who chose 'A' level STEM courses at high school tend to apply for less male-dominated majors at university, such as biology or pharmacology; or they shift to social science and humanities (Paksi, 2014). The 'academic pipeline' is leaking during later career stages as well, and loses women to a greater extent than men. It is well documented that professional women tend to leave science mainly after obtaining their PhD (Etkowitz et al., 2000).

INTRODUCTION

Recent research (Xie & Shauman, 2003) has called attention to the multidimensional aspects of human life courses and that factors that affect careers are multi-levelled as well. Besides structural constraints and women's preferences, family background plays an important role in women's career orientation. Latest research (Mason et al., 2013; Hewlett, 2007) using the life-course approach has examined parallel life events in order to understand women's career related decisions more thoroughly. During early tenure track family- and especially childbearing-related difficulties and work-family imbalance have the most significant negative impact on women's career advancement. Though the majority of women face work-life imbalance regardless of educational or occupational field (Nagy & Paksi, 2014), in male dominated fields, such as engineering, they hardly find any female role models to follow and may receive less organisational support for balancing their work and family life (Evett, 1994).

However, a research career starts earlier than getting the first tenure track. Doctoral holders spend a long time in the educational system, often combining their studies with employment. This career stage has a great importance as far as their future career is concerned and may demand their full attention, to the detriment of private, and especially family life. Meanwhile, this life period usually overlaps with the 'ideal' time for family establishment (Hewlett, 2003). Higher educated women often delay their motherhood to an age that may well be 'too old' for the first childbirth (Paksi & Szalma, 2009). If they become a mother during their PhD studies, they should probably handle more than two life

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1 We use the word of 'science' for the natural sciences, similar to the expressions of 'Science, Technology, Engineering and Mathematics (STEM)' or 'Science, Engineering, Technology (SET)'.

domains. Considering the above mentioned, young researchers therefore often face balancing not just their studies and private life but, in addition, their work and childbearing at the same time. Each scenario may generate work-life balance problems already before tenure track employment.

Though some research called attention to youths already being aware of the work-life balance problems even during their university studies (Martinez et al., 2013; Engler, 2011), the majority of the research about women in science focuses on the tenure track period. Research scarcely examines early-stage research careers in terms of work life balance, or the possible effects of education.

Our paper therefore focuses on the work-life balance of female PhD students with special attention to the issue of childbearing. Firstly, we will introduce the theoretical background and discuss work-life balance theories relevant to our research topic. Then we will shortly summarise some main earlier research findings on the work-life balance of higher educated women. After showing some features of Hungarian society in relation to childbearing and PhD education, we will present our research findings. Based on qualitative interviews, an overall picture will be given on how PhD students in our research could or could not balance their work, education and private life in the field of engineering. It will be shown how their multiplied life domains and the heavy and multifaceted workloads hindered their work-life balance, especially childbearing, as well as how the field of science – in our case, the laboratory work – affected their balance negatively. After listing some limitations of our research we close the paper with a discussion of the research findings and with future implications.

BACKGROUND

Theoretical framework

There is a wide range of literature about the issue of work and family life balance. Research usually describes the relationship of the two life domains using the conflict (Greenhaus & Beutell, 1985) and the segmentation models (Roehling et al., 2003). Both theories consider work and family life as independent life domains. However, research concepts of middle-range theories have been changing continuously (Dén-Nagy, 2013) and there has been a significant shift in the research focus in the last decade. The main concept of the new models is based on the idea that work and family life are interdependent (Roehling et al., 2003). Recent research has been rather aiming at exploring the quality – both the negative and positive relations – between work and family, including (Edwards & Rothbar, 2000). Another line of research went beyond this approach and developed models that show how individuals are able to, and do form their own work-family interface (Clark, 2000). In this section, we introduce four main theories related to our research briefly.

The most widely used model for describing the relation of work and family life is Greenhaus and Beutell's (1985) work-family conflict model. It was mainly based on the role stress theory (Kahn et al., 1964) and emphasised the opposition of the two life domains. The authors formulated the notion of work-family conflict as follows: 'a form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible in some respect' (Greenhaus & Beutell, 1985: 77). The direction of the

conflicts is twofold, it can flow from work to family and in reverse, from family to work. The authors proposed three forms of the conflict based on their source. The first was the time-based conflict, when the time pressure of each life domain is incompatible with the other(s). Conflicts can arise when one life domain demands more time from individuals than they can devote to it. In the case of the strain-based conflict strains derive from the demands of the different roles in a way that one hinders complying with the demands of another. The third was the behaviour-based conflict, when a behaviour – related to a life domain's role – is incompatible with the expectations of other behaviours of another role. For example, a leading position at a pharmaceutical company requires – according to managerial stereotypes – certain qualities, such as self-reliance, conductivity, steadiness and rationality. Meanwhile, a family may expect a woman to be emotional, subjective and obeying. The conflict occurs when the person fails to adjust to these contradicting behaviours (Greenhaus & Beutell, 1985). Each form of the conflict implies the impossibility of the fulfilment of work and family-related roles at the same time.

Parallel to the work-family conflict model, the segmentation theory (Edwards & Rothbar, 2000) is also often applied to describe the relation of the two life domains. It is one of the earliest models, which claims that work and family life domains are relatively separated, therefore they do not affect each other. This theory was mainly relevant in the 1960s and 1970s, when work and family life were indeed separated physically, temporally and in their function (Rantanen, 2008: 10). Later research realised that work and family life are closely related and separation does not occur naturally. Instead, it is an active process, which is rather based on individual choice. Individuals keep the two spheres independent by suppressing their thoughts, feelings and behaviours. In this way they can avoid stress filtering from one life domain to another (Edwards & Rothbar, 2000: 181).

However, avoiding the flow of the different effects between work and family life is not easy. The basic idea of the spillover theory is that work and family life cannot be separated, roles belonging to life domains can coexist at the same time, and individuals carry different moods, emotions and skills from one life domain to another (Tammelin, 2009: 28). This is very similar to that described by the work-family conflict model (Greenhaus & Beutell, 1985). However, in the case of the latter, individuals carry these effects 'without a mediating role of subjective cause-effect evaluation', which demonstrates the incompatibility of work and family roles (Rantanen, 2008: 15). In the case of the spillover model, filtering effects cause similarities between the life domains (Rantanen, 2008). While earlier research emphasised the negative quality of these spillovers, recent research has started to focus on the positive effects that also filter from work to family, and in reverse. Scholars have developed different concepts according to the type of interaction, such as work-family positive spillover (Hanson et al., 2006), work-family facilitation (Frone, 2003) or work-family enhancement (Voydanoff, 2002). Greenhaus and Powell (2006: 72) summarised these concepts and used the term of 'work-family enrichment' for all these positive work-family interfaces. In their recent work they called attention to an important aspect: though the segmentation of the life domains may prevent the filter of the negative spillovers, it also impedes the flow of positive spillovers (Powell & Greenhaus, 2010: 525-529).

While the spillover theories are built on the concept that work and family domains affect each other, newest theories offered more complex models for understanding the work-family interface. The most frequently used model is Clark's border theory (2000) that argues – similar to the idea of the spillover theory – that work and family life are not

segmented; their borders are permeable. Permeability shows to what extent elements of a life domain can enter into another. The author calls individuals 'border crossers' who transit from one life domain to the other daily (Clark, 2000: 748). She gave an example that in the case of home office work the border is very permeable because family members can enter into it frequently (Clark, 2000: 757). This theory considers individuals not passive, but active actors, who are able to form their work-family interface to a certain extent by using different tools and are able to achieve a more or less balanced life.

These theories approach the work-family interface from the individual's point of view. However, the context of the work-family interface can also be researched at a) micro level, when only face-to face relationships are examined, b) meso level, when reciprocal effects between individuals and role partners are researched as well, c) exo level, when effects of a third life domain in which individuals are not involved is included, d) macro level, when the broader social context is also taken into account (Rantanen, 2008: 11).

Earlier research findings

Though having been a current and relevant issue, the work-life balance of women in R&D, especially in STEM fields remains a marginal topic in the social scientific academic discourse. In this section we briefly introduce some significant research findings on the topic. Research already reported that balancing work and family life is a continuous challenge for higher educated women (Moen & Sweet, 2010; Halrynjo & Lyng, 2009; Ridgeway & Correll, 2004). American studies based on thorough and representative large-scale research (Mason et al., 2013; Jacobs & Winslow, 2004; Hewlett, 2003) showed that female professionals, especially those who are married and have children are susceptible to slow career advancement or may abandon science. Besides quantitative research, qualitative data also confirmed that developing personal identities that incorporate motherhood and career is difficult for women in STEM fields. A multinational research (Herman & Lewis, 2012) involving European countries called attention to the particularly challenging nature of a motherhood and a sustainable career in the field of science, engineering, and technology. The authors summarised their research findings as follows: The 'evolution of mothers' perceived entitlements to be able to modify work for family reasons is rarely combined with a sense of entitlement to sustain career progression' (Herman & Lewis, 2012: 781). Interviews with professional women working at STEM fields (Mavriplis et al., 2010), and at a high technology engineering company (Evett, 1994) revealed that women face several cultural contradictions within male-dominated organisations that hinder their work and family life balance.

There are even less data on the work-life balance of graduate students. A representative survey carried out at a large university in the USA (Stimpson & Filer, 2011) showed that balancing school, work and family life was full of stress for the students, regardless of their martial status. The study pointed out that single students can be overburdened as well by compensating for the workload of those married counterparts that were having babies. Nevertheless, female graduate students, especially young mothers were less satisfied with their work-life balance than their male peers. They found the demands of time and the juggling of multiple roles the most hindering factors (Stimpson & Filer, 2011). The problem of the heavy workload seems to be a general phenomenon according to a recent large-scale research project in several European countries (Friesenhahn & Beaudry 2014),

where young academics reported 55 work hours a week, and the majority of the time was spent on teaching and administrative work instead of research. Another study (Haynes et al 2012) approached the problem from the issue of well-being. It showed that work and private life conflict of female PhD students negatively affected their emotional and physical well-being. Students in this research tried to develop different coping strategies and to find social support in order 'to be able to gain a certain sense of control' over their lives (Haynes et al., 2012: 12).

It can be seen that research usually introduces students' work-family interface in a way that is similar to that described by the conflict model (Greenhaus & Beutell, 1985) and work-life balance is a serious issue for women even during their under- and postgraduate studies. Juggling with the multiplied roles is a source of stress for the students and often generates conflicts in their relationships (Gold, 2006) or causes different health problems (Calicchia & Graham, 2006). Motherhood especially has a significant negative impact on students' work-life balance, similarly to the case of those young mothers already in the labour market.[2]

Hungarian context

In this section we briefly present those features of Hungarian society that are important in the contextualisation of our research findings.

Though socio-demographic changes that characterise the second demographic transition, such as a low fertility rate and delayed motherhood have already reached Hungary, attitudes towards family have hardly changed. Hungarian society is still family-oriented: the majority of society still considers family more important than work (Pongrácz & S. Molnár, 2011) and that mothers should stay at home with their child up to the maximum length of the parental leave that is three years in Hungary (Blaskó, 2005). The process of re-familization and the backlash against women's emancipation (Nagy, 2009; Křížková et al., 2010), as well as strong traditional family roles and gender attitudes all hinder women's career advancement, especially in male-dominated fields. Women's representation in the field of engineering is very low (She Figures, 2012): it is around 30% among PhD holders, and 21% in R&D (KSH, 2010-11).

Research focusing on the work-life balance of students in tertiary education is scarce in Hungary. A regional large-scale survey (Engler, 2011) on graduate students' career and private plans revealed that youths even between the age of 18 and 24 paid a considerable amount of time to the issue. Though a significant part (40%) of the students was family-oriented and planned family formation after graduation, every fifth student seemed to be 'career-centred'; they planned to delay their family establishment to their mid-thirties.

The first research in the field of engineering in Hungary was carried out in 2012 and used mixed research methods (Szekeres & Krolify, 2013). Its quantitative data showed a higher proportion, 36% of career-centred undergraduate students with only slight gender differences. In addition, the qualitative research revealed that undergraduate women engineers already counted the years how they could become a mother at a young age and establish a stable career before childbearing (Takács et al., 2013: 147).

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2 Nevertheless, young mothers' educational performance in tertiary education is often higher than that of their childless counterparts' (Engler 2013)

However, higher educated women in Hungary – similarly to in Western countries – also postpone their motherhood.[3] Their average age at their first childbirth was more than 31 years in 2013 (KSH, 2013). A regional survey on PhD students (Fináncz, 2007: 493) revealed that students' postponing family formation was mainly due to financial and career-related reasons, or – particularly in the case of women – the lack of a stable partner. It was an interesting result that almost half of the childless students in this research did not plan any family at all.

Teachers can significantly form students' attitudes towards family roles, by which they can influence their career orientation as well (Margolis, 2001). The before mentioned mixed-method research (Szekeres & Krolify, 2013) called attention to engineering teachers at this university disseminating very traditional family and gender roles. (Szekeres & Krolify, 2013). Moreover, though the issue of work-family balance was not directly addressed, female teachers – based on their own experience – concluded that career and motherhood cannot be reconciled in engineering and IT. It gives a food for thoughts that hardly any of them thought that this situation should be changed (Nagy, 2014: 147-149).

Summarising the Hungarian situation, we can say that though the strong traditional attitudes towards family roles are still strongly present in Hungarian society, the value of paid work and a career is increasing, especially among higher educated individuals (Pongrácz, 2011). This implies that the role of work-life balance has been increasing in the lives of women in tertiary education and in R&D. Nevertheless, male dominated fields seem to resist these changes more, as is the case in Western countries.

METHODOLOGY

Based on the literature introduced above we aimed to explore how female PhD students balance their studies, work and family life in the field of engineering.[4] We conducted 11 semi-structured interviews with female PhD students under the age of 40 in a doctoral school in Budapest in the field of chemical and biological engineering. We conceptualised 'PhD student' as individuals who are enrolled in doctoral schools, within the official time limit of the programme and have not received their degree yet.

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3 This phenomenon started already before the political system change (Tóth, 1993).

4 Further sub-questions of the PhD research were: What facilitating and constraining factors do female PhD students in engineering identify in relation to their work-life balance? Are there special characteristics of education and working in engineering that affect this balance? How does PhD attendance affect their timing of the first childbirth? In this paper we introduce some main characteristics of students' work-life balance.

Sample description

Nr	Age	Martial status	Parental status	PhD status	Workplace	Lab. work
1	24	Single	Childless	State fellowship	Does not work	Yes
2	28	Married	1 child	State fellowship	Academia	Yes
3	31	Single (Cohabits)	1 child	State fellowship	Academia	Yes
4	28	Single (Cohabits)	Pregnant	State fellowship	Academia	Yes
5	28	Single	Childless	State fellowship	Academia	Yes
6	26	Single (Cohabits)	Childless	State fellowship	Does not work	Yes
7	31	Single	Childless	State fellowship	Other public institute	Yes
8	25	Single (Cohabits)	Childless	Industrial fellowship	Does not work	No
9	28	Married	Childless	State fellowship	Academia	Yes
10	28	Single (Cohabits)	Childless	Industrial fellowship	University	No
11	29	Married	Childless	Industrial fellowship	Industry	Yes

The number of female PhD students in engineering is limited. We reached all the students via email and included all those who replied positively to our request. This may result in a biased selection of the population, however, this provided us with information-rich cases of interest where individuals have specific knowledge about the topic (Creswell, 2007: 125). We applied template analysis for the analyses. Hierarchical coding was used where similar codes are clustered together to generate more general, higher-order codes (King, 2004).

At the beginning of the interviews, we applied the overall appraisal approach (Grzywacz & Carlson, 2007) in order to gain an understanding of what work-life balance means to them and how they perceive their work-life balance in general. After some introductory questions we applied the components approach during the interviews (Grzywacz & Carlson, 2007), aiming to explore students' present work-life balance and their future balancing plans in detail.

RESULTS: Work-life balance of female PhD students in engineering

The interviews highlighted several facets of how female PhD students in our research balanced their work, studies and private life. They identified several constraining and facilitating factors in relation to their balance. In this section, firstly, we give a short summary of their work-life balance in general. Secondly, we will show how the multiplied life domains and the multifaceted workloads hinder their balance, especially their childbearing. Finally, we will introduce the negative role of laboratory work in the work-life balance of these students.

Work-life balance in general

By work-life balance students usually meant having enough time for their activities and separating their work and private life. We used the term of work-life balance during the interviews, where life included all activities in the private sphere beyond family. However,

interviewees mainly spoke about their family life and rarely mentioned other, e.g. leisure activities. Family usually included partners, children and/or parents.

When students were asked about their work-life balance in general, they reported a mixture of a quite good balance and poor balance. Those students who found their lives quite well balanced were typically childless and they did not work in the labour market in parallel with their PhD education. Those who were dissatisfied with their work-life balance were rather young mothers, or already worked in the labour market. When students' work-life balance was inquired about in detail, answers gave us a more nuanced picture and showed that work-family balance is a serious issue for these young researchers.

The majority of the students were childless at the time of the research. Their perception and experience can provide us with a quite clear picture on how they balanced their work, studies and private life without parental obligations. However, all these students – even the single one who wanted to remain childless – had a firm opinion about how motherhood may or may not compatible with academic career. The issue of childbearing therefore will be discussed in the following regardless of parental status. Hence, we will notify the parental status where it is relevant.

Multiplied life domains and multifaceted tasks

PhD education was not a time for recess for the significant majority of the students we interviewed; they were fully devoted to their profession. They tackled the multifaceted tasks of their different life domains that often characterise early-stage professional careers. We found significant differences in students' work-life balance according to how many and which life domains they handled in parallel.

Balancing 'only' PhD studies and private life seemed to be less burdensome compared to life situations that involved more than two life domains. These students belonged to the youngest cohort and lived with their parents or had just left the parental home. They were quite satisfied with their lives, however, some later confessed that household chores were quite challenging in terms of time management.

The significant majority of the PhD students in our research worked in parallel with their PhD studies. The presence of a third life domain especially put a constraint on students' work-life balance for each life domain required a full time role. This childless woman well summarised the time squeeze and the fatigue she felt even before childbearing:

'Although I don't have any children yet, sometimes I have no idea which way to look. In my opinion a job is already full time, and if you're a woman there is the household and stuff, which also requires energies full-time. And then there is the PhD…. (nr 11)

Work and PhD related tasks often overlap in the case of public employment at a research institute or university, but scarcely at a pharmaceutical company. Nevertheless, students usually had to meet the multiplied and multifaceted requirements of young researchers' work in both cases, such as course work, exams, PhD research, workplace research, publications, conferences and a huge amount of teaching and administration tasks. We can well understand their struggle well described in the next quotation. This student working at a research institute considered switching to industry due to overwhelming work and stress. Her words showed how high students (would) rank the issue of the dissertation-writing compared to their other obligations, and how it was subordinated by the need and interest of the organisation.

'At our department every PhD student and actually every colleague has tasks that support operation and tuition […] at the expense of writing the dissertation. I'm so stressed about everything, the exam period, the deadlines […] I can't imagine how I could manage all this (childbearing during a PhD course); […] hard work every day, stress, conferences, semester closing, semester opening, educational issues.[...] and I don't feel like doing this.' (nr9)

Moreover, it was not unusual that former tasks of students on parental leave were delegated to other students instead of employing a substitute for this period of time. This produced additional extra workloads that might generate tensions between colleagues.

'All the work of a colleague, who left to found a family, has been transferred to me. I also got the tasks of another colleague who left for America, and I am really fed up […]' (nr9)

There was a strong agreement among women we interviewed that work-life balance is of a lesser concern for men in their profession. Firstly, though we found examples of more equally shared family obligations between partners, men were not the primary care givers in their families and household chores were typically not their responsibility.[5] Secondly, students based their opinions on their experiences of their male colleagues. A woman who had only male colleagues framed her opinion in a way that showed men usually not just faced fewer household chores but they handled obligations of the multiplied life domains with more ease and less effort:

'I see my colleagues – all my colleagues are male – I cannot see problems that, oh my God, there is a pile of clothes for ironing waiting for them, but there is a lot to do at the university here as well. I think men are looser. And I don't know, I don't see that it would burden them that they have to fulfil more commitments.' (nr8)

As we mentioned above, having enough time for all activities was a criterion of the students for a balanced life. However, they often failed to achieve this goal, similarly to the other one: separating their education and work from their family life. Though in some cases they verbalised part successes, such as not speaking about work at home and vice versa[6], they could not separate their life domains in other terms.

Firstly, frustrations, stress, tiredness and the lack of time for family life due to the overburdening obligations often caused tensions in their private life. A young mother explained this as follows:

Unbelievable what can come up, they (students) totally upset you, therefore I go home in such a manner, obviously I try not to take this out on my family , but this causes insomnia, I am just turning in my bed, can't sleep, and from here my performance at my workplace the next day is like… (nr3)

Some parts of the heavy workloads are based on inner needs and are hardly measurable. PhD students often mentioned the need and demand for 'continuous creative thinking' and for 'being always up-to-date' in their research field. Both required huge amounts of time investment that was well beyond their working time that often characterises professionals' work. On the one hand, students voluntarily devoted their leisure time to these activities in spite of their wish to separate their work from private life. On the other hand, it caused tensions when it prevented them from spending quality time with their families, and in some cases, this was partly responsible for breaking up their stable partnerships.

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5 At this point we should note that educational homogamy (the same level of the education of the partner) was typical among students. In our case, even the field of education (engineering) was the same as well.
6 Not to speak about family issues at workplace was relevant when the partner of the interviewee worked at the same workplace.

Secondly, the boundaries between work and private sphere were often blurred. Participating in PhD education and employment in the public sector provided students with more or less flexible working conditions. On the one hand, students could utilise the advantages of the flexible working hours and the home office. They could use working time for arranging – only – important private issues quite easily, or could work at home e.g. if their child was/would be ill. On the other hand, they experienced the disadvantages of this flexibility: overwork and use of the home office even during the weekends was typical. Nevertheless, flexibility was flexible up to the point of the need of the organisation. Students scarcely mentioned the possibility for part-time jobs, and if so, they only considered that during the parental leave for it would mean a lower salary at the same time.

Moreover, we have found a special effect of the field of education on students' work-life balance. The majority of the students' work included laboratory work. This significantly and negatively influenced their work-life balance, for it was inflexible in terms of time. It required a thorough planning of the measurements if students did not want to spend their leisure time in the lab. However, PhD students often failed[7] to finish their lab work by the end of their working hours, moreover, they often went to their university or workplace in the weekends to start or end a measurement. Going into the lab out of working time made them to 'cross the borders' between their work and family life domains frequently. In was interesting to see when the partner was an engineer as well, this caused little problem between the partners.

Childbearing

Becoming a mother in parallel with PhD education implies handling a new additional field of life. From the interviews it became obvious that even if students' life was quite balanced, childbearing definitely had changed or would change this equilibrium. These women were eager to share their dilemmas and concerns in relation their motherhood (plans)[8] that had been worrying them for years. They especially pondered at what age they should become a parent, when to interrupt their career, and how they would be able to reconcile childbearing with education and work.

The majority of the students considered the second half of their 20ies an 'ideal' period for having the first child, and over 30 'too late' for it. Therefore the years of PhD education seemed to be a good option for them as far as the ideal age was concerned. However, they found childbearing hardly reconcilable with PhD education and work, for each of them required full time and attention and each of them was full of stress – as we discussed earlier. A childless woman who had been working at a pharmaceutical company for six years gave us an excellent summary of the situation. It was telling that in the six years she had never heard of an example of a woman who had been successfully raising a child during PhD and had worked in industry at the same time:

'[…]and the child requires again full-time attention, so I really don't have a clue how I will manage all that. I think if you have a job, and also do a PhD and have a kid, you will easily lose control. It's very difficult to do a PhD and raise children as well as work. I don't

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7 Measurements are often unpredictable in terms of their duration and results.
8 Except for one interviewee, who voluntarily wanted to remain childless for she did not want to 'give up' her very well balanced work and private life.

even know anyone who could pull it off.' (nr 11)

Students sometimes stated that career and childrearing were so incompatible and felt they had to choose between career and motherhood. This 25 year old woman addressed exactly this problem that showed how female life courses differ from men's in R&D:

'My fiancé is all enthusiastic about it, but actually he won't have to quit his job. So when I decide that I'm willing to give up my professional career, we can immediately have a baby.' (nr8)

This obvious conflict between work and private life often forced these women to further delayed childbearing, decrease the desired number of children, and in a few cases abandon their career plans. For example, the above mentioned student was planning to rather have her first baby during PhD education unless she would become too old for motherhood. It was her well deliberated decision not to start a career in R&D in parallel with her PhD because she found it irreconcilable with motherhood. However, she experienced so much uncertainty in relation to a career break during PhD education as well, that she could not bring herself to adecision.

'My future career is uncertain in connection with this, because I don't know how I could leave, how I could return, how I could carry on, and who will say what to that. […] things like that make me feel insecure.' (nr 8) […] 'This is exactly why I didn't start a career anywhere, because I felt it could have been either the career or the children. But not both at the same time.' (nr8)

Women in our research experienced uncertainty in different life segments. This woman was uncertain how to return to the labour market after a career break and did not have any idea how she would be able to continue her work. She was even preoccupied by the thought what attitudes her environment would show towards her career break, because decision makers in this profession are usually men. This reflects the still prevalent discrimination of young mothers in R&D, especially in male dominated engineering. Moreover, she definitely expressed her concern about the devaluation of her professional knowledge whenever she takes the maternity leave.

This latter concern was widely shared among students, who added that the demand for being always up-to-date was especially difficult in the case of young mothers, for international conferences and scholarships were hardly reconcilable with their family life. Meanwhile, network building is one of the most important features of researchers' socialisation (Shaw, 2004: 39).

Reconciliation of work, studies and childbearing seemed to be difficult not just at the level of planning. A mother with a young child continuously faced a lack of time that often forced her to choose work over family. Stress was daily present in her life and she found this time squeeze unsolvable in spite of having a partner who took his share of the household chores. However, her last words referred to the traditional family roles, which she did not share but yet accepted.

'My day is always full of continuous stress and hurry. I am always behind with my household chores, or my work, or I cheat and chose the shortest tale to tell my child. I suffer from continuous lack of time, and I am afraid that it could be solved only in if a day was 34 hours instead of 24. I often see this problem as unsolvable, though my partner takes his share in the household chores as much as you can expect that from a man'.

Later she was quite straightforward and concluded that childbearing was a serious obstacle to her career. This experience hindered her from realising her fertility plans.

Initially she had planned three children, but confessed it was a 'silly' idea of hers. Her words hinted that a second child at least should be born in order to have a sibling to her daughter.

I feel now how difficult a pledge it was to study in parallel with a family. To put it roughly, it is an obstacle that I have a young child' (nr3)

We saw earlier how the laboratory work influenced students' time schedules and melted the boundaries between life domains. However, the majority of the students' laboratory work involved hazardous chemicals, which put a further significant constraint on women's work-life balance. Firstly, it strongly determined the timing of their childbearing. Even when some students considered the years of PhD education suitable for childbearing, they were not able to reconcile such a pregnancy and breastfeeding with the risk of exposure to hazardous chemicals (Bellingham & Sharpe, 2013). Secondly, they cannot be cautious enough: even if they adhere to every safety protocol and regulation rigorously, accidents can and do happen. The following two quotations show the seriousness of the health hazards:

'As for me I learned about my pregnancy rather late, and I accidentally knocked over some carcinogenic solvent in the lab before I even knew. Well, the baby was affected a bit, but it was only for one or two days.' (nr 4)

'[…] women they had better have children as soon as possible, because no matter how careful we are about health and safety, these chemicals do not make childbearing any easier.' (nr 5)

DISCUSSION

Our results clearly showed that the problem of balancing work and private life is present as early as PhD education. Multiplied life domains, such as motherhood and/or labour market activity in parallel with PhD studies – cases when young researchers had to handle more than two life domains at the same time – had further significant negative impact on students' work-life balance. In harmony with Friesenhahn and Beaudry's study (2014), overwhelming work characterised our young academic incumbents' lives as well at this very early-stage professional career. Each life domain of the students demanded a full role with multifaceted tasks that often caused time squeeze and stress for them. Our results confirmed an earlier raised issue (Stimpson & Filer, 2011) that apart from mothers, single students can be overburdened by shouldering their married counterparts' work. Moreover, though students had the autonomy to schedule their obligations, their needs were often subordinated by the need of the organisation.

Professional women usually do not want to separate their work and private life (Sturges, 2012) therefore it was interesting to see how strongly these young researchers wished that the beginning of their career. This need is similar to what segmentation theory (Edwards & Rothbar, 2000) described: students protected their balance by expelling the negative effects of one field to another. However, PhD students in our sample could just rarely realise this goal. Results rather tended to confirm the spillover theory (Roehling et al., 2003): in spite of their efforts, students often experienced work-related stress filtering into their family life. The permeability of the border of students' life domains proved to be high, especially if they worked in the public sphere. Research institutes and universities usually

provide more flexible working conditions than industrial companies. However, we found the role of flexibility unambiguous, as it is often discussed in the international critical discourses (Fursman & Zodgekar, 2009: 53). Though students were allowed to schedule their tasks quite freely, they worked overtime and used the home office in order to cope with the overwhelming work. In addition, laboratory work that characterised chemical- and bioengineers' work played an important role in work-life balance: no matter how flexible the working conditions were, the inflexibility of lab work was definitely a curb on it.

We saw that family establishment and PhD education overlap in our interviewees' lives as well (Mason et al., 2013). However, work and family life often seemed to be irreconcilable with studies, even when students had only planned their motherhood. The continuous lack of time and the stress they reported exactly referred to the time-based and the strain-based work-family conflict model described earlier in the theoretical part of this paper (Greenhaus & Beautell, 1985). In addition, these PhD students rather delayed their motherhood than facing unpredictable and uncertain labour market conditions. Nevertheless, students were fully aware of the age norms and the biological limits of motherhood that forced them to compromise between the ideal timing of childbearing and the less bad timing of a career break. Laboratory work, especially using hazardous chemicals proved to be a more serious obstacle to women's childbearing as well. Our research showed that female researchers are not just at a greater risk in a lab (Bellingham & Sharpe 2013), but this had a significant negative effect on the work-life balance of the students and of any women in this field. When women decided to have a child, or not later than when they learned about their pregnancy they had to quit laboratory work. The timing of this career break should be well deliberated, considering the tradition both of the long parental leave and at least six-months of breastfeeding in Hungary.

Results confirmed the findings of other Hungarian and Western countries data (Nagy, 2014; Jacobs & Winslow, 2004) that life courses are still highly gendered in R&D. On the one hand, the preference for traditional family and gender roles both at the work place and in private life were definitely obstacles to women's work-life balance. On the other hand – according to these women –, they rather facilitated, or at least did not hinder the work-life balance of students' partners and their male colleagues. Furthermore, men, unlike many of the women in our research, were hardly forced to choose between parenthood and career. Students agreed on that childbearing slows the academic career of women by hindering the mobility and collaborative network building of young mothers. Meanwhile, these tools are especially important elements of the early career establishment for researchers' 'social adaptation' (Shaw, 2004: 39). Young mothers are therefore often excluded from this network building, as our interviews showed accordingly.

In sum, PhD students with or without children in our research faced different difficulties in relation to their work-life balance regardless of how they perceived and reported their balance in general. Tools and strategies for achieving a balanced life were so different that it is difficult to describe them with a single theory or model. Those students, who found work and private life more or less reconcilable, balanced their life in a way that can be described by Clark's border theory (2000): though they could not change their life domains radically, they were able to form them to an extent, achieving a more or less balanced life. However, the others, who reported poor work-life balance or the incompatibility of the two life domains made huge efforts to ease the conflict between their work/ studies and private life. In a way, they also 'fought' for their balance, even it was meant 'tilting at the windmills'.

CONCLUSION, LIMITATIONS AND FUTURE IMPLICATIONS

Based on the discussion we can draw a conclusion that the work-life balance of female engineering PhD students in our research can be described mainly by the conflict theory (Greenhaus & Beautell, 1985). Students especially had a strong need for balancing their work and family life, however, it seemed they are not able to achieve that on their own. There is a need for exploring the structural barriers to women's professional advancement (Gill et al., 2008: 401) during early career-stage as well, such as PhD education. Nonetheless, educational institutions and workplaces should reflect on themselves as well, and assess how support can be given to these young researchers.

One main limitation of the paper is that it only showed the main features of the work-life balance of these students. Further research findings of this research project is under publication, such as the timing of PhD education and the first childbirth; facilitation and constraining factors in relation to childbearing; the possible differences in the work-life balance of students in chemical/biological engineering and in mechanical/electrical engineering; as well as the sectoral differences. Another limitation of this research is that the results cannot be generalised, they describe the main features of the very small group of female engineer PhD students in Budapest, Hungary. Future research may therefore explore the regional differences in the work-life balance of PhD students, and other STEM fields.

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